This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Digitized by Google

3 2044 106 439 599

Per.
U.S.
M-11

HARVARD UNIVERSITY HERBARIUM.

Bought

LIBRARY OF THE GRAY HERBARIUM
HARVARD UNIVERSITY

Digitized by Google

Digitized by Google

Digitized by Google

MEEHANS' MONTHLY.

A Magazine of Horticulture, Botany
and kindred subjects.

CONDUCTED BY

THOMAS MEEHAN,

FORMERLY EDITOR OF THE "GARDENERS' MONTHLY," AND AUTHOR OF THE "NATIVE FLOWERS AND FERNS OF THE UNITED STATES." VICE-PRESIDENT OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA. BOTANIST TO THE PENNSYLVANIA STATE BOARD OF AGRICULTURE, ETC.

ASSISTED BY

THOMAS B. MEEHAN, J. FRANK MEEHAN, S. MENDELSON MEEHAN.

Volume VI,
1896.

ILLUSTRATED WITH COLORED LITHOGRAPHS,

BY

L. PRANG & CO.,

AND NUMEROUS COPPER AND WOOD ENGRAVINGS.

COPYRIGHTED.

THOMAS MEEHAN & SONS.

GERMANTOWN, PHILA., PA.

Digitized by Google

Preface to Volume VI.

ALL NATURE is a series of advances and rests. We work by day and sleep by night. Plants and flowers have no diurnal periods,—but they rest and advance all the same. Their whole growth is in rhythms. A little movement,—a greater swell—a gentle passage to rest. Then comes a renewal, many times daily, with its corresponding rest.

And we, who treat of flowers, have our advances and our resting times. We start when the year opens,—go merrily along, rhythmically from month to month, till we reach our December resting period, when the literary flower presents to the reader its ripened fruit.

It remains now only for the reader to gather and store the product on his library shelves. We believe our work has been useful and will be a fund of pleasure for all time. We close the volume, in this feeling, with pleasure, and with renewed life and energy for another year's experience.

Digitized by Google

INDEX TO VOLUME VI.

COLORED PLATES.

	PAGE
Aquilegia cœrulea	61
Aspidium Goldianum	121
Cirsium discolor	161
Dicentra cucullaria	41
Gordonia pubescens	201
Habenaria leucostachys	81
Hepatica triloba	21
Hypericum Kalmianum	141
Lespedeza hirta	181
Liparis liliifolia	1
Lupinus perennis	101
Rudbeckia fulgida	221

ILLUSTRATIONS.

	PAGE
Adder's-tongue Fern, the	187
Apple and pear on same branch	217
Apple, the Gloria Mundi	137
Apple, the Senator	15
Aquarium plants	191
Bag worm, the	233, 235
Bartram's wood-shed, John	11
Begonia olbia	211
Brace for wind-split tree	229
Bulblets from lily scales	53
Cereus triangularis	5
Chestnut, abnormal	213
Cloverhead	168
Cosmos Marguerita	155
Currant, Werder White	97
Cycas revoluta	134
Eel-worms	117
Flower of sago palm, the female	12
Flower, the cruel	206
Forest at Bellwood, Va	147
Garden, a rock	175
Garden in Switzerland, a glacier	31
Garden puzzles	33
Grafting	93
Grafting, natural	111
Hedges, Japan Privet	9
Herbarium of Blue-prints, Fern	225
Landscape gardening, art in	30, 71
Lattice-leaf Plant, Madagascar	231
Liriodendron tulipifera leaves	104, 105, 145
Maples, three varieties of the Japanese	25
Marsila quadrifolia	107
Norway Spruce, var. pyramidalis	87
Norway Spruce	85
Norway Spruce hedge	47
Oak, a large	185
Oak, a young Pin	27
Oak, deer's-head growth on a White	45
Oak, union	167
Pear garden	131
Pine forest in New Jersey, a natural	65
Pine grove, a White	149
Parasite on geranium, a root	192
Plants, repotting	73
Pyrus arbutifolia	55
Quercus imbricaria	91
Retinispora squarrosa	51
Rothrock, Prof. Joseph T	119
Rose, Yellow Rambler	173
Sarracenia variolaris	205
Shortia galacifolia	83
Sweet Pea "Red Riding Hood"	171
Tilia Americana, trunk of	153
Tillandsia Wilsoni	130
Toad-flax, yellow	164
Violet, a cleistogamous	127
Yew, the Irish	94

POEMS.

	PAGE
Apple Bloom, in the	89
Beauties, Unseen	58
Beech Tree, Memories of the	69
Bird, the Humming	23
Books, the Smell of my Old, Old	79
Chance, the Lucky	118
Choir, the Feathered	189
Compensation	38
Daffodils, in Company with the	29
Dandelion, the	83
Flowers, Winter the Nursery for	17
Garden and the Woods, the	129
Garden, Spring in the	109
January	7
June, a Day in	103
Life, the Decline of	178
March	43
Monuments, Living	238
Morn, an Easter	63
Nature, the Language of	223
November	209
Oak, to an	158
Pumpkin, a Pæan to the	169
Reap, as We Sow so Shall we	198
Rose, the Life of the	218
Roses, a Bed of	49
Scene, a Summer	123
September	163

Digitized by Google

	PAGE
Sermon, a Flower	78
Spring, Welcome	98
Solitude, a Woodland	143
South, Flowers of the	3
Summer, Indian	203
Territory, a Birdless	150
Tree, Plant the	229
Well Done	138
Woods, the Silent Autumn	183

	PAGE
Achimenes in out-door culture	150
Acorns, peculiar growth of	128
Actinomeris squarrosa	193
Adder's-tongue Fern, the	187
Ailanthus, odor of	10, 93, 171
Agave Virginica	213
Algeria, progress in	150
Aneomone patens var. Nuttalliana	100
Apple as national flower, the crab	159
Apple and pear on same branch	216
American Grape Growing aud Wine Making	159
American Gardening	59
American Gardens and Gardening	19
Animal and vegetable life, independence of	26
Animals, provident habits in	188
Apgar's Trees of the Northern United States	19
Apple, the Senator	15
Apples, notes on	16, 17, 37, 75, 76, 116, 137, 197
Apples, Paradise	57
Apple, Arkansaw	96
Apple, Ben Davis	156
Apple, Northern Spy	96
Apple, York Imperial	177
Aplectrum hyemale	48
Apple Canker in Oregon	197
Apple, Rawle's Janet or Ralls' Genet	136
Aquilegia cœrulea	61
Aquilegia, the story of	158
Aquarium management	190
Apple as a prophylactic, the	237
Art and Nature in Gardening	30
Asclepias tuberosa	174
Ash, Wafer	139
Asparagus culture	135
Aspidium Goldianum	121
Asplenium pinnatifidum	163
Asters and golden rods	125
Baily, Joel J	58
Baptisia tinctoria	28
Barclay, George	17
Bark within the wood of trees	227
Bartram's Wood Shed, John	17
Bark, Linden	152
Beans in fall, string	136
Bebb, M. S	79
Bees, notes on	63, 126, 128, 140
Beetle, the Elm-leaf	118
Bennett, A. W	38
Begonias as house plants	172, 211
Bidens Beckii	52
Biography	59
Bitternut, the	27
Blackberries, planting	197
Blackberry branch, an arrested	167
Blue Curls as fodder	63
Books, reference	59
Boissier, Trimen and Trecul	238
Botany in a city town	232
Bradt, Geo. M	219
Breeches Flowers	100
Broom, the	203
Bud-grafting, hybrids by	97
Bulblets from lily scales	53
Cabbages, notes on	35, 37, 175, 176
Cactuses, grafting	110
Calendars, fruit and flower	231
Camphor tree, the	149
Cannas	95
Canaigre	20, 200
Carpet Bedding	34
Carnations, notes on	55, 70, 95, 150, 154, 210
Caryopteris Mastacanthus	55 194
Cardamine pratensis	186
Carrots	115
Cassabanana, the	16, 36
Castilleja coccinea	190
Cauliflowers	177
Cedrus Deodara	38
Cereus triangularis	11
Celery culture, amateur	115
Cherries, improved Sand	235
Cherries, early ripening of	215
Chestnut tree, transformed sexes in	207
Chestnuts	96
Chestnut Hickory, a	28
Christmas Trees	10
Chrysanthemum, the George S. Conover	12
Chrysanthemum culture, notes on	35, 74, 114, 209
Chrysanthemum, classification of the	73
Chrysanthemums, hairy-flowered	95
Cider	214
Cirsium discolor	161, 165, 220
Cladastris tinctoria	135
Clematis disease,	11, 240
Clematis, Madam Edw. André	174
Climatic conditions, variation in	6
Clover, fertilization of	3
Clover, fertile	223
Collections, value of	139
Columbine Association, the	119
Color without light, green	26
Corn from Indian Mound	23, 49, 70, 129
Corn, twin ears of	44, 135
Corn, early	135
Corn, sweet	151
Cosmos, notes on	134, 155 235
Cosmos, atros-sanguinea	234
Cotton, history of	78
Cuckoo flower, habit of the	223
Cucumbers, forcing	157
Curculio and the Japan Plum	85
Currant, a large	236
Currant, insects infesting the red	37
Currant, the black,	156
Currant, the Werder White	97
Cycas revoluta, flowers of	134
Cymbidium aloifolium	34
Dahlia, the cactus	11
Daphne cneorum	74
Dearborn, General	199
Development, accelerated	168
Dewberry, Lucretia	115
Dicentra cucullaria	41, 88
Digitalis ambigua	95
Diseases, fungoid	239
Doddet	232
Dodecatheon Meadia	194
Draba verna	127

Digitized by Google

PAGE

Dreer's establishment, Henry A..... 189
Egandale..... 238
Elæagnus Simonii..... 34
Elderberry root, poisoning by..... 24
Elephant plant, the..... 195
Epimediums..... 214
Erigeron strigosum, rayless..... 219
Eucalyptus..... 218
Exotics, acclimatizing..... 32
Fairy rings..... 170
Falconer, William..... 238
Familiar Trees and their Leaves..... 159
Fern, the Hart's-tongue..... 154
Ferns, new work on American..... 219
Ferns, notes on.....44, 66, 84
Fertilizers..... 192
Firs and spruces..... 169
Fish, care of aquarium..... 109
Flora of Alabama..... 219
Flora of Mt. Desert Island..... 18
Florilegium Harlaamense..... 179
Flowers at Trenton Falls..... 183
Flowers, continuous blooming hardy..... 194
Flowers, demon..... 200
Flowers, influence of frost on hardy..... 194
Flowers, insects fertilizing..... 146
Flowers, notes on odors of.....65, 128, 174, 230
Flowers, Nux Vomica for cut..... 231
Flowers, preserving cut..... 240
Flowers, state and national..... 180
Forest, a winter stroll in a..... 223
Forest fires, notes on.....60, 74, 192, 233
Forest laws..... 49
Forest, succession of..... 106
Forestry.....10, 92, 147
Fothergilla alnifolia..... 40
Freezing, death from.....125, 186
Frog culture..... 140
Frost, protection from early..... 172
Fruit mixture..... 99
Fruits and Flowers, changeable characters of... 156
Fruits, degeneration of..... 96
Fruits, evaporating..... 60
Fruits without flowers..... 127
Fungicide, copper solutions as a..... 193
Fungus, the black mold..... 172
Funkia undulata folia variegata..... 54
Gaillardia grandiflora..... 194
Garden, conditions for a market..... 213
Gardening in America..... 100
Gardening in Chicago, early..... 89
Garden puzzles..... 33
Garden, Queen Victoria's..... 232
Gardening, cost of..... 154
Gas in a Hollow tree.....40, 108
Garden, the wild..... 212
Gardens, rock..... 174
Gardens and parks, public..... 180
Gardener and Forester, city..... 100
Gardening and botany, newspaper..... 100
Gardening at Memphis, Tenn..... 193
Geneva nurseries..... 240
Geum, the yellow..... 208
Gilliflower, the..... 194
Golden Gate Park, San Francisco..... 240
Gladiolus communis..... 135
Gladioluses, sick..... 135
Golden rods..... 214
Goldie, James.....198, 218
Gordonia pubescens..... 201
Grape, Campbell's Early..... 215
Grape, McPike..... 197
Grape vine, a huge.....188, 196
Grape culture, notes on.....75, 77

PAGE

Grape fruit or shaddock..... 138
Grape, Muscat of Alexandria..... 136
Grapes, to the old world, shipping..... 77
Grapes under glass..... 236
Grapes, Tokay..... 237
Gray's Synoptical Flora of South America..... 18
Grafting, natural..... 111
Graft propagation..... 93
Grafting, vagaries in..... 93
Greenhouse, a large..... 29
Growths, abnormal..... 190
Habenaria leucostachys..... 81
Habenaria orbiculata..... 127
Hackberry.....133, 200
Hamburg, exhibition at.....140, 179
Hedges, ornamental..... 109
Hedges, New Jersey tea plant for dwarf..... 232
Hedges, Japan Privet..... 9
Hedges, Norway Spruce..... 50
Hedges, Pyrus Japonica..... 71
Hepatica triloba.....21, 86
Helonias bullata..... 84
Herbarium of pictures..... 224
Herbarium, Dr. Ravenel's..... 139
Heuchera sanguinea..... 95
Helenium autumnale..... 234
Hickory, the Bitternut..... 124
History, the truths of..... 79
Horse chestnut, the..... 7
Holly with yellow berries, the American..... 86
Honey, poisonous.....98, 123, 125
Honey from flowers, how obtained by humble-bees..... 126
Honeysuckles, sweet scented..... 139
Hop-clover, the yellow..... 173
Horses, hair balls in..... 188
Houstonia longifolia..... 168
Humble-bees and clover..... 128
Humor, Dean Hole's idea of..... 80
Hybridizing, raising new forms by..... 8
Hypericum Kalmianum..... 141
Illustrated Flora of the Northern United States and Canada, An..... 219
Insects, intelligence of..... 156
Insect life, notes on.....24, 64, 66, 86, 114
Insect eggs on street trees..... 32
Insectides..... 230
Insects, destruction of.....130, 152
Irises, Japanese.....155, 195
Irrigation, notes on.....169, 19
Ivy, the Kenilworth..... 5
Jay, a plucky Blue..... 208
Kennedy, Dr. Alfred L..... 58
Kentucky Coffee, range of..... 85
Landscape gardening on the Pacific Coast..... 233
Leaves and flowers, relation between..... 50
Lemmon, Prof. J. G..... 19
Labels, tree..... 133
Leaves and Fruits, skeleton..... 164
Lawns, care of..... 70
Lawns, salt for..... 113
Leaves, injury by loss of.....146, 208
Lettuce, improved..... 115
Lespedeza hirta..... 181
Lewis' leaf charts.....98 119
Lily, the Harris.....104, 119, 145, 194
Liriodendron tulipifera leaves.....104, 145
Leaf, fall of a..... 171
Leek, the..... 237
Lettuce..... 237
Locust leaves for sheep feed..... 37
Lilies, Mariposa..... 213
Lilium longiflorum and Harrisii..... 194
Lupines, American..... 160

Digitized by Google

PAGE

Lupinus perennis.....101, 103, 146, 160, 189
Magnolia glauca in Pennsylvania..... 228
Magnolia tripetala, variegated..... 173
Maple, the Silver 151
Maple, the Norway and Sugar..... 224
Maples, Japanese..... 32
Manna 120, 179
May apple, fruit of..... 86
May apple, rose colored..... 126
Mahonias..... 131
Manning, Warren H..... 40
Manure, notes on.....54, 57, 111, 212
Marsilia quadrifolia 107
Mayweed, a double..... 53
Meehans' Monthly, notes on.....20, 40, 60
Mexico, botany of..... 107
Mignonette, the..... 131
Missouri Botanical Garden, Sixth Annual Report..... 17
Mistletoes, American..... 6
Mistleto, early history of..... 239
Moon flower, the..... 209
Morphology, vegetable..... 69
Mosquito plant, the 160
Mushrooms, notes on..... 197, 215
Names, local..... 239
Nectarine, origin of..... 97
Nine Hundred and Ninety-nine Queries and Answers 58
Nelumbium luteum.....26, 50, 85
New Jersey, the botanists paradise of..... 103
New Jersey tea plant for dwarf hedges..... 232
New Hampshire, Autumn in..... 226
Nursery Book, the..... 219
Nut Culturist, the..... 199
Nutmeg Hickory, the..... 28
Oak, a dwarf Black Jack..... 234
Oak, a large Red..... 123
Oak, beauty of..... 11
Oaks, the growth of..... 29
Oak, northern range of the Spanish..... 86
Oak, a Mossy Cup..... 163
Oak, union..... 167
Oaks, two big..... 185
Onions, notes on.....76, 99, 157, 177
Onions, flowering 154, 193
Onoclea struthiopteris..... 65
Orange, the Tangerine.....16
Oranges, thick-skinned.....13, 57, 96
Osage Orange, early history of..... 118
Osborne, Amos O..... 239
Ostrya Virginica..... 106
Ouvirandra fenestralis..... 231
Parks, politics in public..... 152
Parks at Plymouth, Mass..... 172
Pæonies 135
Parks in New York, small..... 180
Palm, flowers of the Sago..... 12
Palm, the Sago..... 179
Parasites, root.....116, 192
Parsnips, poisonous.....163, 236
Pea, the Cow..... 51
Peach culture in Illinois..... 15
Peach, the Crosby..... 216
Peach land, best..... 176
Peach, the Triumph 175
Peach trees, curl leaf disease in..... 14
Peaches, notes on.....14, 35, 56, 196 215
Pear, Beurre Superfin..... 96
Pear, Clapp's Favorite..... 215
Pear, Kieffer..... 96
Pear, the winter Bartlett..... 16
Pears, notes on.....13, 57, 237
Peas, ripening..... 195

PAGE

Pears, notes on.....115, 220
Pecans, thin-shelled..... 151
Pellæa gracilis 86, 228
Peppermint..... 29
Perrine, collections of General 12
Persimmons, Japan..... 37
Persimmons, sweet..... 14
Pineapple in Florida, the..... 37
Pine forest in New Jersey, a White 120
Pinus tæda..... 160
Pitcher plant, a large..... 159
Planera Richardii 187
Plane trees, American..... 92
Plant growth, effect of season..... 126
Plant life, extension of..... 166
Plant names, notes on.....60, 99, 143, 158
Plant variation, the law in..... 180
Plants, notes on.....53, 59, 139, 172, 195, 228
Plants, origin of thorny..... 87
Plants, repotting..... 73
Plates, damaged..... 160
Plum, the American..... 116
Plum, Grand Duke..... 14
Poetry, floral..... 119
Poets and nature..... 160
Poisonous roots near New York..... 33
Poison vine, the..... 126
Pollen, immediate changes by action of..... 56
Pond Park at Hartford..... 151
Poplar leaf stalks..... 144
Porcher, Dr. F. P..... 18
Potatoes, notes on.....99, 176, 178
Potato, the Early Rose..... 115
Powers, motive..... 240
Prang's calendars..... 19
Privet berries in ink making..... 10
Privet hedges, Japan..... 9
Primroses for frame culture, hardy..... 34
Prune culture in America..... 36
Prune, the Splendor..... 56
Pseudophœnix Sargenti 54
Pullman, gardening at..... 129
Pyrus arbutifolia..... 55
Pyrus Japonica hedges..... 71
Quercus imbricaria..... 90
Radishes in winter 177
Raspberries, planting..... 197
Raspberry, the Loudon..... 14
Raspberry, Superlative 215
Retinispora squarrosa..... 51
Rhubarb as a vegetable 13
Ribes Lobbii..... 233
Rice, wild 44
Rocks, bare..... 227
Rose grower, honor to a 239
Root-fungus diseases..... 53
Rosa rugosa hybrids..... 39
Roses, proliferous..... 164
Rose, the Niphetos..... 170
Rose, Crimson Rambler.....209, 174
Rose, Yellow Rambler..... 173
Rose, double Wichuariana 154
Rose fruits, variations in..... 27
Rose, prairie..... 143
Roses and their odor 132
Rothrock, Dr. Joseph T..... 119
Rudbeckia fulgida..... 221
Rudbeckia speciosa..... 158
Rusby, Dr. H. H.....219, 78
Rush, the scouring..... 188
Rye grass and darnel..... 110
Sap, the flow of..... 186
Sassafras trees, the 39
Saunders, Prof. Wm.....130, 80

Digitized by Google

PAGE

Scenery, impressions of..... 159
Science, mysteries of..... 140
Scions, graft..... 11
Scolopendrium vulgare..... 20
Scott, Robert..... 178
Seedling, proprietary rights in a..... 169
Seedlings, influence of stock on..... 176
Seeds, national distribution of..... 139
Seeds, notes on.....58, 106, 114, 166
Sentiment, a plea for..... 185
Shellbark, improvement in..... 74
Schizæa pusilla..... 68
Shortia galacifolia..... 83
Silica, by plants, absorption of.....113, 94
Silk weed, children's toys from..... 5
Smith, Wm. Brown..... 98
"Soil," the..... 219
"Southern Florist and Gardener"..... 179
Spider plant, the giant..... 234
Spider, the red..... 130
Spiræa Astilboides floribunda..... 80
Spiræa Anthony Waterer..... 54
Spiræa, VanHouttei..... 134
Spring, the advance of..... 69
Sprouts inside of fruits..... 6
Spinach..... 215
Spring in Georgia..... 108
Spraying of plants, the..... 118
Spraying plants..... 195
Stephanandra flexuosa..... 213
Stevens, John H..... 38
Story spoiled, a sublime..... 8
Strawberry, origin of..... 197
Strawberries, crops of..... 57
Strawberries, improved..... 236
Strawberry, the Lady Thompson..... 76
Strawberry, McKinley..... 177
Strawberry, the Timbrell..... 115
Strawberry, the Woolverton..... 115
Strawberry Blight..... 156
Sumach, flowers of the.....
Sugar making..... 143
Such, George..... 19
Superintendent of Schenley Park..... 80
Swallows, notes on.....4, 43, 47, 48, 68, 84, 105, 146
Swamp plants on dry ground..... 9
Swamp, the Virginia Dismal..... 23
Sweet pea, Red Riding Hood..... 171
Sweet peas, improvement in.....32, 75
Sweet Pea Review..... 239
Symplocarpus foetidus, time of flowering..... 64
Tacoma..... 159
Tea, Pennsylvania mountain..... 160
Thalictrum Anemonoides..... 114
Thistle, Chinese..... 40
Thistle in California, the Russian..... 18
Tillandsia Wilsoni..... 130
Timber Pine of the Southern United States, the..... 239
Toadflax, peloria condition of the yellow..... 164
Tomato, notes on the.....39, 58, 157, 177, 197, 200

PAGE

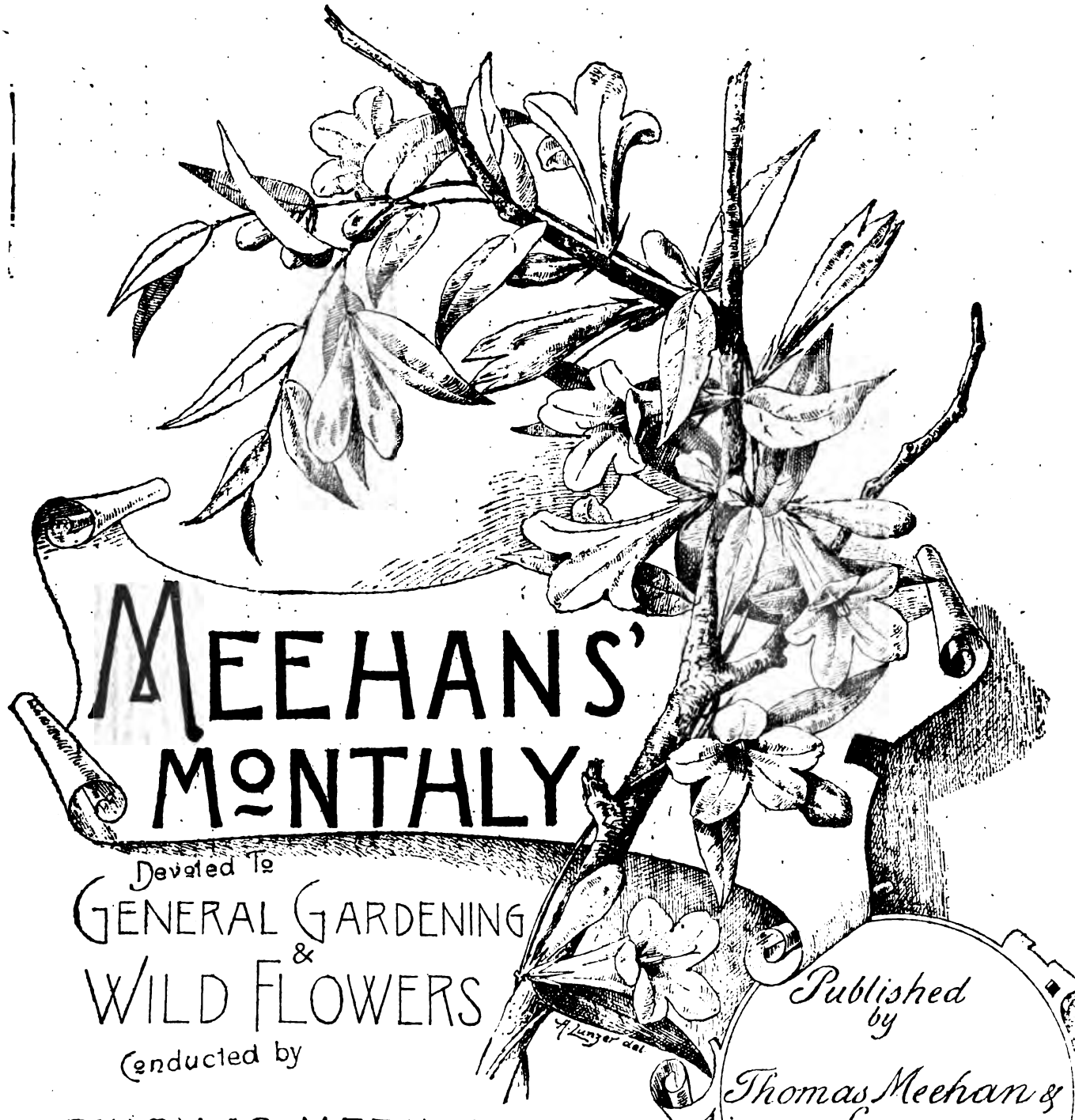
Tools, care of garden..... 16
Traveller's Notes..... 199
Tree planting, cost of city..... 114
Tree seeds, raising..... 72
Trees, branching of..... 90
Trees, badly pruned..... 92
Trees, growth of..... 180
Trees, good roots in transplanting..... 230
Trees, hardier..... 149
Trees, historic..... 220
Trees injured by electricity.....11, 210
Trees, longevity of..... 149
Trees, annual wood circles in 45, 144
Trees, preserving wind-split..... 229
Trees, public street..... 72
Trees, raising large..... 170
Trees struck by lightning..... 138
Trees, trimming street..... 10
Trees, vitality of.....146, 208
Tulip, the wood..... 95
Turnips in Autumn..... 177
Tussilago farfara L..... 227
Vaccinium occidentale..... 36
Varieties, productive..... 77
Vaux, Calvert..... 18
Vegetable growth, subterranean..... 16
Vegetable kingdom, evolution in..... 178
Vegetable physiology..... 168
Vegetables, turnip or tap-rooted..... 235
Vegetables, winter grown..... 56
Verbena, recollection of the..... 12
Vernonia Lettermanii..... 194
Violet, pronunciation of..... 220
Virginia, good roads in..... 229
Vitis indivisa..... 223
Von Mueller, Baron Ferdinand..... 238
Walnut hulls..... 237
Wayside and Woodland Blossoms..... 99
Weeds, notes on.....30, 152
Wheeler, Erastus S..... 58
Wild flowers of Connecticut..... 79
Window and Parlor Gardening..... 19
Window gardening, Rudyard Kipling's..... 9
Wild flowers of Delaware..... 105
Wild flowers of Oklahoma..... 168
Wild flowers, a plea for..... 112
Wild flowers, improvement of..... 154
Winter effect, plants for..... 92
Wild flowers in gardens..... 155
Witch, the water..... 118
Wood, cell structure in..... 224
Wood, mineralized..... 140
Wood, preserving..... 172
Woods, Botanizing in wintery..... 4
Worm, the Bag..... 233
Wordsworth..... 78
Wragg, John..... 218
Wych Hazel, fragrance of..... 4
Yam, the wild..... 154
Yew, the Carpenter Irish..... 94

Digitized by Google

Digitized by Google

VOL. VI JANUARY, 1896 No. 1

ISSUED MONTHLY, $2.00 PER YEAR IN ADVANCE, SINGLE COPY 20 CENTS.



MEEHANS' MONTHLY

Devoted To

GENERAL GARDENING & WILD FLOWERS

Conducted by

THOMAS MEEHAN

A. Lunger del.

Published by Thomas Meehan & Sons Germantown Philadelphia.

COPYRIGHTED 1896

ENTERED AT THE PHILADELPHIA POST OFFICE AS SECOND-CLASS MATTER

Digitized by Google

Meehans' Monthly

PUBLISHED MONTHLY BY

THOMAS MEEHAN & SONS,
Germantown, Phila.

Subscription Price $2.00 per year.

$1.00 for Six Months. Back Numbers 20 cts. Each.
Two Subscriptions for $3.50 per Year.

ADVERTISING RATES ON APPLICATION

Forms close on the 20th of each Month, preceding date of issue.

Address all Correspondence relating both to Editorial and Advertising matter, to

THOMAS MEEHAN & SONS, Publishers
Germantown, Phila., Pa.

BERKSHIRE, Chester White, Jersey Red & Poland China Pigs. Jersey, Guernsey & Holstein Cattle. Thoroughbred Sheep, Fancy Poultry, Hunting and House Dogs. Catalogue.
S. W. SMITH, Cochranville, Chester Co., Pa.

For Flowers Indoors.

Bowker's Flower Food.

A rich, concentrated fertilizer, odorless, made from chemicals; applied in solution once or twice a month, makes house plants grow vigorously and blossom abundantly.

A small spoonful for a 2-inch pot.
A larger spoonful for a 4-inch pot.
Enough for 30 plants 3 months, 25c.
Enough for 30 plants a whole year, 50c.

We pay the postage and send a book on "Window Gardening" free with each package.

Bowker FERTILIZER CO., 27 Beaver St., New York. 43 Chatham St., Boston.

NEW AND RARE PLANTS

Abutilon S. de Bonn, 20c.; New Bougainvilia, 50c.; New Caryopteris, 25c.; Crimson and Pink Clematis, 30c.; Royal Coleus, 30c.; Cape Fuchsia, 20c.; Peperomia, 25c.; Blue Solanum, 25c.; Schizocodon, 50c.; Strobilanthes, 30c.; Thyrsacanthus, 25c.; Kosteletskia, 25c. etc. **New Crimson Rambler Rose, 30c.**

New Cannas, 25c.; White Canna, Pink Canna, 25c.; Black Calla, 20c.; Yellow Calla, 75c.; Purple Calla, 40c. Golden Amaryllis, 50c.; Blue Tigridia, 15c.; Rare Dahlias, etc.

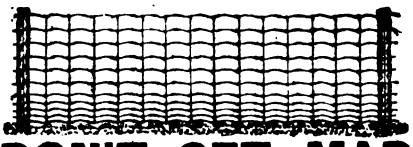
New Golden Mayberry, 50c. Strawberry-Raspberry, 50c. New Raspberry-Blackberry, 50c.

Any three 25-cent plants for 60c.; 5 for $1.00
Any two 30-cent plants for 50c.; 4 for $1.00

100 Summer-blooming Bulbs, 12 sorts, $1.
100 Gladioli, from over 1000 varieties, $1

Hundreds of other rare plants and bulbs. Send at once for our illustrated catalogues.

A. BLANC & CO., 314-316 N. 11th St., Philada.



DON'T GET MAD

If a Page agent claims our wire is 50 to 100 per cent better than used in any other fence. **Make him prove it.** He can do it or we will disown him.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

DO YOU WASH DISHES?

No need of it. The Faultless Quaker will do it for you and save time, hands, dishes, money, and patience; no scalded hands, broken or chipped dishes, no muss. Washes, rinses dries and polishes quickly. Made of best material, lasts a lifetime. Sell at sight. Agents, women or men of honor desiring employment may have paying business by writing now for descriptive circulars and terms to agents.

The QUAKER NOVELTY CO., Salem, O.

CYPRESS

IS MUCH MORE DURABLE THAN PINE.

CYPRESS SASH BARS

UP TO 32 FEET IN LENGTH OR LONGER.

GREENHOUSE

AND OTHER BUILDING MATERIAL.

Send for our Illustrated Book
"CYPRESS LUMBER AND ITS USES."
Send for our Special Greenhouse Circular.

THE A. T. Stearns Lumber Co.,
Neponset, Boston, Mass.

Digitized by Google

Digitized by Google

LIPARIS LILIIFOLIA

Digitized by Google

LIPARIS LILIIFOLIA.

AMERICAN TWAY-BLADE.

NATURAL ORDER, ORCHIDACEÆ.

LIPARIS LILIIFOLIA, RICHARD.—Leaves two to six inches long, elliptic ovate, spreading, shorter than the scape. Scape three to six inches high, angular, the angles often margined. Flowers rather large, in a loose, oblong, terminal receme; lip as long as the straw-colored perianth lobes, cuneate-obovate, abruptly acuminate, brownish-purple. Capsule oblong, angular, about three-quarters of an inch in length. (Darlington's *Flora Cestrica*. See also Gray's *Manual of the Botany of the Northern United States*, Chapman's *Flora of the Southern United States* and Wood's *Class-Book of Botany*.)

There are numerous flowers that the popular mind would not esteem beautiful. Too often beauty is merely the gay. If a plant have showy flowers,—flowers with rich colors and which press themselves on our attention, it is rare that the mass of the people do not pronounce them beautiful. But those who understand true beauty see it in numberless ways not vouchsafed to others to see, and enjoy true beauty where others would only see a bank of weeds. An unknown English poet truly expresses these sentiments in a pretty fugitive poem called "Sunshine and Shadow."

"Only a bank of weeds, of simple weeds,
Of sweet wild thyme and yellow scented broom,
Of tangled grass and slender wind-blown reeds,
Of brown notched ferns and tall spiked fox-glove bloom,
And yet a world of beauty garners there,
Low twittering birds, soft scents, and colors fair."

Those who interpret the gay as the beautiful, will not admire our American Tway-blade. It will not be found among the bright ornaments of the flower garden. But those who can appreciate the poet's bank of weeds, and the many beauties garnered there, will assuredly not miss this. On moist banks in shady woods, among the dead fronds of ferns and the decaying leaves of the protecting trees, it finds itself at home. Frequently it seems to be growing in this mass of mouldering vegetation rather than in the earth as other plants are found. It grows more or less abundantly all over the Atlantic portion of the United States, that is to say, in most of the territory east of the Mississippi River, and always in these shaded woodland situations, as far as the writer of this is aware. It is remarkable that it is seldom found in any large quantity in any one place, a circumstance common to many other orchids, notwithstanding the many thousands of seeds which mature in each seed vessel. Occasionally cases are met with where numerous small plants, evidently seedlings, surrounded a few old plants. Really, almost all plants of orchids with a habit of growth like this must have originally come from seeds, as they multiply very little by root division. As we see in our illustrations, Figs. 1 and 3, there is an old bulb bearing a dried flower stem, and from this bulb, a shoot bearing the flower of the present year. A little later the old bulb (Fig. 1) will dry up and disappear, its substance going to nourish the whole foliaceous and floral structure of the new growth, which has no roots of its own. After having been thus nourished from the parent bulb, and gone so far as to mature its seed vessels, a new bulb is produced at the base at Fig. 3, which in turn sustains the whole growth of the ensuing year. There is rarely (if ever) over one stem a year,—so that on this principle the bulb of to-day, producing but one other each year as the old one decays, would yet be represented by but one bulb and one flower scape even a hundred years to come. Fairly presuming that this has always been a character of the plant, the plants, everywhere common, must have originated from seed and not from offsets. The conclusion from all the facts is that it requires a very nice co-operation of circumstances to produce conditions favorable to the germination of these minute seeds. Further, when we consider how widely some of these species are distributed, and how rarely their seeds grow in these days, we may assume either that the world is enormously old, and the plants have slowly progressed over the continent through

Digitized by Google

the long ages,—or else that the conditions favorable to the germination of the seeds have changed in modern times. Mr. Darwin indeed adduces good reasons for the belief that all orchideous plants are very old inhabitants of the earth,—that many forms have wholly disappeared,—and that those which have come down to us have been wonderfully changed through a long course of slow modification.

As already noted, an immense number of seeds are found in one seed vessel; but in the *Liparis* as found about Philadelphia, very few of the flowers produce any seed vessel. In the specimen illustrated, the old spike is drawn as it occurs naturally, mature at about the same time that the flowers of the present season appear. It has perfected but one seed vessel, (Fig. 4) all the others having fallen as the flowers faded away. In order to ascertain how far this tendency to infertility prevailed in the region referred to, twenty-five plants, taken at random, were marked, and the number of flowers and final seed vessel, on each spike, noted. On four spikes aggregating thirty-six flowers, not one capsule matured. On six spikes with sixty-two flowers, only one each, as in our illustration. Three spikes, with fifty-four flowers, three capsules each. Four with one hundred and six flowers, four seed vessels. And two spikes, of thirty-one flowers, five each. The last was the greatest number found in any plant outside of those marked. There were altogether fifty-six seed vessels from three hundred and seventy-five flowers, showing that in that number about six flowers were infertile for every one that matured seed; and this good average only through a few fortunate plants, as fifteen plants out of the whole had no seed, or at best but one or two seed vessels. These peculiarities in orchids are often attributed to circumstances connected with the subject of cross-fertilization through insect agency.

It has been difficult to decide on the best English name to adopt for our plant. Professor Gray and other botanists employ the same name for two different orchids. In the *Manual of Botany*, "Tway-blade" is given to *Listera* as well as to *Liparis*. In this chapter, an attempt is made to distinguish them by adding "American" to this species, as it is wholly an American plant, while the *Listera* is also a native of Europe, and the genus to which the original "Tway-blade" properly belongs. The name is a very ancient English one, and even old writers refer to the two leaves for its origin. It may, however, be remarked that many English plants have a pair of leaves only, and might suggest this name as well as the one which seems to have secured it. The *Listera ovata* has, besides the two leaves, the lip of the flower divided so as to represent exactly two blades of a knife, united at the base. It is really a "double" or "Tway-blade." How far this may have influenced the original appelation, it is not possible now to say.

The two-leaved character is not always constant. As we see in Fig. 3, there is a green sheath under the pair of perfect leaves. Salmon, writing in the days of Queen Anne, says of the original "Tway-blade," "sometimes it will have three leaves, but it is very rare; and this, some account to be a different sort, but is rather looked upon to be *Lusus Naturæ*, in ground which abounds with too much nourishment, which happens also to many other plants." It shows the fact has been long known, however we may differ from the explanation. Gronovius, the editor of Clayton's early collections in Virginia, notes the same "*Lusus Naturæ*" of our present species. He says "the two leaves are erect, shining and veined, appearing like plantain leaves, convolute at the base, and sometimes with a lower third one, but always very small." Why leaves are sometimes suppressed, and at other times developed, is not yet clearly known,—but there is reason to believe that it is the reverse of the explanation suggested by Dr. Salmon. All the floral parts of a plant are made up of parts which, in their earliest microscopic stages, were designed to be leaves. It is a higher effort of vital power which unites parts as flowers, which under a lower power would be free as leaves; and the power to make the best use of nourishment is the attribute of strong vital power. How this law works may be seen in Junipers and other coniferous plants. In the Red cedar the more vigorous branches have the leaves united with the stems. In the weaker branchlets the leaves are free, as in species generally.

EXPLANATION OF THE PLATE.—1. Bulb of last year. 2. Mature flower-scape of the preceding season. 3 Growth with flower-scape of present season, yet to form the bulb. 4. Only seed vessel, maturing on last year's scape.

Digitized by Google

WILD FLOWERS AND NATURE.

FLOWERS OF THE SOUTH.

He told of the magnolia, spread
High as a cloud, high overhead;
The cypress and her spire;
Of flowers that with one scarlet gleam
Cover a hundred leagues, and seem
To set the hills on fire
—WORDSWORTH.

HISTORY OF LIPARIS.—In addition to what has been said in regard to *Liparis liliifolia* in the chapter accompanying the plate it may be noted in connection with the genus itself that in the writings of the earlier botanists, *Liparis* plant will be found classed among *Ophrys*, a name given by the ancient Greeks to some species of orchid, and retained by Linnæus to designate a genus in which he included this. When more became known of orchideous plants the genus *Malaxis* was formed, and in this genus our plant will be found in the botanical literature of the earlier part of the century. When still more knowledge was gained, Richard, a French botanist, established the genus *Liparis*, and our plant became *Liparis liliifolia*, that is, the Lily-leaved Liparis, Those who are familiar only with the slender stem leaves of lilies will not see the resemblance; but the root or autumn leaves of some lilies, especially *Lilium candidum*, are broad, thick and shining, and the leaves of our plant have some resemblance to them. The generic name, *Liparis*, was suggested by the shining, fat-looking leaves of the European plant, *Liparis* being Greek for fat or unctuous. Clayton, the botanist, who noted it first as growing in Virginia, makes the annual record of the date on which he found it, May 24, 1874.

THE FERTILIZATION OF CLOVER.—The *Hartford Times* has the following:

"The theory that the bumblebee fertilizes the clover blossoms has often been asserted and the Australian importation of that insect for such purpose has been cited, as an example, that one must hesitate to contradict these statements. Yet they are improbable and erroneous when one considers the working of the insects on the clover heads, whose numerous little florets are exact pea-blossoms, with a large tube and self-fertilizing organs, into which the insect thrusts its long proboscis to draw out the secreted honey; and she need not pierce the florets, but can, and does perfectly well, reach the sweets from the outside, as in the columbine, the foxglove and the pea, which she riddles when at work on them. Careless acquiescence has too long permitted the continuance of this idea. To ascertain correctly the truth about it, needs further attention and investigation."

This is another illustration of the danger to real science by broad generalizations from a few isolated facts. Mr. Darwin covered some clover so as to prevent the bumblebee from reaching the flowers, and few flowers produced seeds. No one is recorded as repeating such a simple experiment in the Old World. The whole of the great generalization about the necessity of the bumblebee in clover fertilization rests on this one little observation. But in America men just as reliable as Mr. Darwin have covered clover in the same way, when the plants were just as productive as uncovered ones. These facts have been placed on record in the publications of eminent scientific societies; but the fame of Mr. Darwin overshadows them all. It does not follow that the results reported by Mr. Darwin were incorrect. But it does follow that some other cause, and not the absence of bees, brought about the infertility in his case.

The facts are, as stated by the *Hartford Times*, and as any one who will take the trouble to watch will see, that American bumblebees slit the tube of the clover flowers, and gather the sweets in this surreptitious manner. They seem to prefer this method with most species of plants except those that fully expose their nectaries. Clover requires some check to growth before it seeds freely. In most parts of America the weaker second crop is depended on for a cup of seed. The clover is a self-fertilizer, and bees have no part in the work.

Digitized by Google

HOW DOES THE SWALLOW BUILD ITS NEST?—In the MONTHLY for November, Edwin C. Jellett says "the glue which lines the nest of the chimney swift is of vegetable origin." I would like to ask through your valuable magazine whether anyone has ever detected the bird in the act of gathering the "gum of the cherry or the peach"?

In many parts of the country these birds are quite common. Certainly abundant enough to have been observed gathering the materials from these sources if that is the origin of the glue that holds the twigs together. I once found the nest of this species in the Adirondack Woods, in the second story (attic) of a logging hut, five miles or more from any other building.

The species is abundant throughout Central and Northern New York State, and probably not less so throughout Pennsylvania, so the opportunities are everywhere present. Thus far I have not observed any such proceeding as would be necessary to secure the gum of the cherry or the peach. Dr. Warren says, Birds of Pennsylvania, pages 182, 183, "The chimney-bird, unless resting on its nest or clinging to the sooty chimney sides, is always seen flying."

It even gathers the materials for its nest, as far as the twigs are concerned, "by breaking them off trees when on the wing." It nests with us in barns occasionally; usually high up in the gable of a large barn, against the perpendicular face of a board. This was the site of the nest in the Adirondack cabin.

Has anyone ever seen these birds gathering anything besides sticks and food?

M. W. VAN DENBURG.

Fort Edward, N. Y.

If the bird in question is not the Barn Swallow, what did Chimney Swallows do before there were chimneys? is one of the questions well answered by Dr. Van Denburg. What they have done or will do when they cannot get gum, will doubtless be just as little puzzling, when we know all. The writer of this paragraph has not seen the chimney swift gathering the gum,—but he did see the lump of undissolved cherry gum in the bird's nest referred to. How they dissolve it may yet be a question.

We must take the statement of their breaking twigs when on the wing with as much caution as we now see we should have taken the story about secreting the vegetable gum in glands in the throat.

To break a twig while flying rapidly would lead to a pulling of the twig rather than a snapping asunder,—and it would seem that the bird would be in more danger of breaking its neck than breaking the branch. But if any one has seen it done let him come forward and tell how the bird did it.

BOTANIZING IN WINTERY WOODS.—Dr. C. C. Abbott tells the Philadelphia *Public Ledger* of a winter trip to the woods in New Jersey.

"The north wind passes overhead, and the sunlight creeps among the old oaks as if expecting to find me. It does, and we laugh together. Summer had left an abundance by which to remember her. We call it winter fruit; but it was the deft fingers of summer that shaped the bright red berries of the Black Alder which now replaces the Scarlet Lobelia that in August blazed by the brookside. Then, too, there were ruddy hips, and over the ground the golden fruit of the horse-nettle. The privet, laden with black berries, was still green, and the rhododendron and sassafras sprouts were fresh as a bright June morning, and beyond, the gaunt trunks of the walnuts were draped with climbing Bittersweet, glowing with its wealth of crimson and gold. All this, with abundant sunshine—what if it is December? It would be safe to wager there were flowers yet in bloom, I thought, and straightway found dandelions starring the dead grass."

FRAGRANCE OF THE WYCH HAZEL.—Mr. C. F. Saunders, Philadelphia, observes:

"One damp day recently, when in the woods, I was a good deal puzzled by noticing in the air a delightful fragrance, of more than ordinary sweetness. It being late in the season (November), I saw no flowers near except an occasional belated aster or goldenrod and the witch hazel, none of which I supposed were odorous. On arriving home and opening my tin collecting case, in which I had placed some flowering twigs of witch hazel, I was greeted with a veritable burst of perfume from them. They retained their fragrance for some time in the room. Is it generally known that these blossoms are fragrant? I had never noticed the fact before."

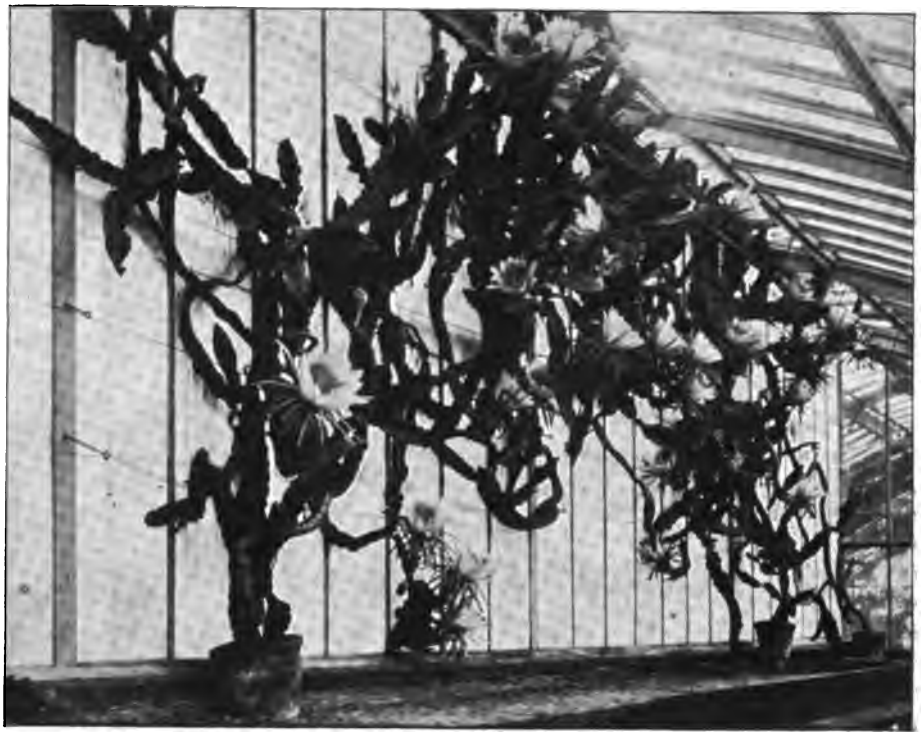
Digitized by Google

CHILDRENS' TOYS FROM THE SILK WEED.—Mr. E. Newlin Williams refers to the many pleasures children can have from common things. He refers to Eastern Pennsylvania.

"The milk weeds are a large genus with us. I note the *Asclepias Cornuti*, the most plentiful; the delicate *quadrifolia*, the *tuberosa*, *purpurascens* and *incarnata*. The *verticillata* may also be found, I believe, by earnest seekers. I find that the *incarnata* has especially large seeds; and that the *tuberosa* has very handsome pods as well as beautiful orange flowers. As for the silk weed, the school children strip the pod away to get the unripe column of seeds and use it in their play as a fish. It corresponds very well to a spindle-shaped fish, and the flat seeds are a splendid substitute for scales. Homeward over the hills one autumn evening I saw groups of its stalks bearing the splitting pods. The outflow of the mass of seeds and down was in beautiful and regular order, for the day had been still, and they looked so soft and tempting to the touch that I grasped a bunch of the silk, and to my surprise found it quite warm, though the sun had set."

THE KENILWORTH IVY.—Mr. Isaac Myer, New York City, says: "In your MONTHLY for December, 1895, page 232, you say, the *Kenilworth Ivy* is a kind of snap-dragon and its name is *Antirrhinum Cymbalaria*. I have a great amount growing but have always classed it in the order *Scrophulariaceæ*, in which are the *Antirrhinum*, but under *Linaria* and have labelled it *Linaria Cymbalaria*. It is sometimes called by the following names, Ivy-wort, *Linaria repens*, Mother of Thousands, Ivy-leaved Toadflax, etc. Will you kindly inform me if I have been wrong in calling it a Toad-flax and not a Snap-dragon?"

Linaria differs from *Antirrhinum* in having a long instead of a short spur. The Kenilworth Ivy is therefore critically a *Linaria*,—and *Linaria Cymbalaria* should be always employed, as our correspondent well suggests. Indeed it is very often known by this name, and the other referred to the list of synonyms.



CEREUS TRIANGULARIS.—SEE PAGE 11.

Digitized by Google

VARIATION IN ANNUAL CLIMATIC CONDITIONS.—The Girard Estate, in Schuylkill Co., Pennsylvania, which is one of the supporters of the Girard College, in Philadelphia, has a water station which supplies some of the mines in the surrounding country with water. Very careful figures are kept, and it is remarkable how the quantity of water falling varies from year to year. In 1886, the precipitation was thirty-six inches; in 1887, forty-eight; 1888, sixty-two; 1889, seventy; in 1890, sixty-four; 1891, sixty-two; 1892, forty-nine; 1893, fifty-nine; 1894, fifty-four. The fractions are not given. The difference between one year of thirty-six and another of seventy is very striking.

GREEN SPROUTS INSIDE FRUITS. — "The germinating of an orange seed within the orange is not a rare occurrence. The writer has frequently met with oranges and lemons in which the seeds had germinated and developed a young plant within. It is caused by defective nutriment in the parent tree. The fruit is always found defective, the little sacs which contain the juices of a perfect orange or lemon are always abortive being changed into fibrous matter, and very bitter. The oil sacs in the rind were also defective or absent.—The writer has found the same abnormal development in the seeds of the *Calystegia Sepium*. Walking on the seashore north of Cape May, the writer noticed the seed vessels of this vine larger than usual. Opening the vessels the seeds were also much larger than usual and of a pale brown color instead of black. Removing the pericarp a young plant was found within, and by carefully unfolding, the cotyledons were found fully developed and about the normal size, of a pale green color. The albumen had all disappeared, being consumed by the young plant.

The actinic rays which develop the chlorophyl in the plant having the power to penetrate the leathery texture of the seeds of the *Calystegia* would also penetrate the defective rind of the orange and lemon. The primary cause is probably an abnormally high temperature and a very humid atmosphere."

P. K. SULOFF.

Philadelphia.

The whole subject of the formation of color in darkness requires going over by a careful epitomist. Many fruits produce green cotyledons in their little seed-prisons certainly in total darkness, though until a few years ago, no one recorded it. Some one had a paper before the American Association for the Advancement of Science, not half a dozen years since, in relation to the common Bittersweet, *Celastrus scandens*, having green seed-leaves or cotyledons inside the fruit. It was thought exceptional. But it is now known to be comparatively common. The garden Phlox, varieties of *Phlox paniculata*, are examples readily secured for illustration.

AMERICAN MISTLETOES. — The American mistletoes differ from the English mistletoe in the independence of the sexes. In the European the male and female flowers are all on the same plant, hence berries may be found on every plant. In America each sex labors for itself, and goes its own way on separate plants, and hence there are many plants wholly barren. Neither are the berries as large as the European sorts, following a general law that in allied species, as in the sweet chestnut, the fruit is always smaller in allied American kinds. On account of this difference in the behavior of the sexes, botanists make a distinct genus of the American,—*Phoradendron* instead of *Viscum*,—*Phoradendron* signifying a thief on a tree, its parasitic nature being referred to. Like its European brother, it is found on any tree frequented by birds that use the berries for food. In Delaware and New Jersey the persimmon and tupelo are mostly its unwilling hosts. Along the Potomac it is common on the Water Elm. It is rarely found north of New Jersey, and scarcely reaches Illinois; but there are other species which take its place. In western Nevada we again strike our friend from the East, though slightly modified by larger leaves, and the plant gets more and more abundant until it reaches Southern California and New Mexico, and, running into Texas, changes to forms bearing pink berries as well as white. One of the most remarkable of the Pacific Coast species, however, has leafless branches; but the round, cord-like stems are succulent. This usually grows on the western cedar trees, which, covered with white, waxy berries in the winter time, make naturally trimmed Christmas trees.—Philadelphia *Public Ledger*.

Digitized by Google

GENERAL GARDENING.

JANUARY.

Then came old January, wrapped well
In many deeds to keep the cold away:
Yet did he quake and quiver like to quell,
And blow his nayles to warm them, if he may,
For they were numb'd with holding all the day,
Ane hatchet keene, with which he felled wood,
And from the trees did lop the needless spray.
Upon a huge great earth-pot steane he stoode,
From whose wide mouth there flowed forth the Romane flood. —*Spencer's Faerie Queen.*

BORERS IN STREET TREES.—Mr. Lewis Collins, the secretary of the eminently useful Tree Planting and Fountain Society of Brooklyn, New York, gives the following instructions in relation to boring insects, so often destructive to street trees:—

"Borers are much more injurious to trees than leaf-eaters, and are much more difficult to control. There is a great number of kinds, and they may be found in every part of the tree, from the smallest twig to the largest trunk. Many kinds infest wood that is dead and decaying. Comparatively few work in living tissues These are the troublesome and injurious ones. The Leopard Moth, *Zeuzera pyrina*, is the most troublesome at the present time. The larvæ of these insects remain within the wood, and beyond the reach of ordinary insecticides. In some instances, they live three years, and excavate channels in the wood that are injurious. They may be cut out in some cases; in others they may be reached by a wire and destroyed. A little bisulphide of carbon injected into the burrow, and the opening closed with a little putty, will prove effectual. The vapor of the bisulphide will penetrate the full length of the tunnel, and will kill the larvæ without injury to the tree. These methods are slow, and require an expert to practice them successfully. It is claimed that a German compound, Raupenleim, insect lime, and a somewhat similar compound called Dendrolene, invented by Prof. E. L. Nason, of New Brunswick, N. J., may be used to prevent the attack of borers, and also to prevent the larvæ in the wood from issuing a perfect insect when the time of transition arrives. It is a sticky substance and may be spread upon a surface and retain its sticky and soft condition a long time. It is claimed that no insect can walk on this substance, and no eggs can be deposited in the bark of the tree through this coating, neither can the perfect insect penetrate it to get out from its burrow. Where the attack of the borers is limited to a comparatively small area, as, for example, the peach tree borer, or that one that destroys the lilac bush, it appears that these substances can be applied with advantage. They are certainly worthy of careful study."

THE DWARF HORSE CHESTNUT.—Respecting the Dwarf Horse Chestnut, of North Carolina, *Æsculus parviflora*, and a fine specimen in Buffalo, New York, Mrs. S. D. Munro, says:

"Your note on the shrub horse chestnut interests me, because for years I have admired such a one in a front yard here. It is about six or seven feet high, and spreads over a large space, with numerous stems apparently springing directly from the ground. The flowers are white. It is an old place, and has other fine plants, among which is a large gingko tree. This was the first, I am told, in Buffalo. I have often regretted that I do not know the inmates of the dwelling. Thought you might be interested in this specimen."

A HUGE COLLECTION OF APPLES.—Possibly the largest experimental orchard of apples in the world is owned by Benjamin Buckman, of Farmingdale, Illinois. His collection embraces over five hundred and fifty named varieties. It seems almost impossible that in any one fruit there could be so much difference that each variety could be surely identified, which it seems is really the case. Those who give their time and money to enterprises like this are public benefactors, and should have more popular appreciation than they generally receive. Fifty are possibly all of general value.

Digitized by Google

A SUBLIME STORY SPOILED —Some one has asserted that there is but a narrow line between the sublime and the ridiculous. How true this may be is illustrated by the following from a Chicago correspondent whose levity, in regard to sentimental matters, we have had heretofore to reprove. But he seems to be a hardened offender, on whom correctional forces are thrown away:

A FANCY FROM FONTANELLE.

"'The Rose in the garden slipped her bud,
And she laughed in the pride of her youthful blood,
As she thought of the Gardener standing by—
'He is old—so old! And he soon will die!'

The full Rose waxed in the warm June air,
And she spread, and spread, till her heart lay bare;
And she laughed once more as she heard his tread—
'He is older now. He will soon be dead!'

But the breeze of the morning blew and found
That the leaves of the blown Rose strewed the ground;
And he came at noon, that Gardener old,
And he raked them softly under the mold.

And I wove the thing to a random rhyme,
For the Rose is beauty, the Gardener time.'"
—*New York Morning Advertiser.*

"And the beauty of all this random rhyme,
Is, there was no one there to take his 'time;'
So the Gardener presented a stuffed pay-roll bill,
And the boss had to swallow a bitter pill."

RAISING NEW FORMS BY HYBRIDIZING—It is remarkable that the raising of new varieties by crossing or hybridizing is not more practiced by the lovers of gardening. There are few garden operations that afford more pleasure. The distinction between crossing and hybridizing is that crossing is the term employed for the interbreeding of varieties,—hybridizing refers to the mixing of different species. For instance, if we raise seedlings between a common red flowered horse-shoe geranium and a white one, that would be considered a cross,—but seedlings raised between the horse-shoe geranium and the ivy leaved geranium, would be regarded as a hybrid. Prof. Munson, of the Maine State Agricultural College, has raised hybrids between our common garden tomato and the small cherry tomato which people sometimes raise for ornament. These are said to be as large as a fair sized garden tomato, but bear the tomatoes in long clusters like currants. Referring to the general subject, he remarks:

"Any one can perform the mechanical operation of crossing plants; but the haphazard uniting of individuals is of little value. To breed plants intelligently we must have a distinct type in mind and work toward our ideal. In order to do this we must have some conception of the effects likely to be produced. The most prominent effects of crossing, as would be expected, are seen in the offspring; and it is of the greatest importance that care be used in the selection of parents. If the parents are very different in character the offspring will probably be weak. But the converse is also true: A cross between closely related species or races is more vigorous than its parent. It is well proved that 'crossing is good for the resulting offspring because the differences between the parents carry over new combinations of characters or at least new powers into the crosses. It is a process of revitalization.'

The limits to which cross-breeding is either possible or profitable are not yet well understood. As a rule, closely related species will cross readily; while widely different species cross with difficulty; but this rule has very marked exceptions. It seems impossible to cross any of the varieties of winter squash—*Cucurbita maxima*—such as Hubbard, Sibley, etc., with varieties of summer squash or with the pumpkin—*Cucurbita Pepo*;—while we feel safe in saying the cucumber and the muskmelon cannot be crossed.

In selecting parents, the question naturally arises as to which shall be made the male and which the female parent in order to produce certain probable results. It was formerly held that in case of a hybrid the female parent gives constitution and vigor while the male parent gives form, size, color, etc. But at the present time it is generally conceded that the results will be approximately the same no matter which is used as the male or female parent.

It is not always possible to select our male and female parents at will. In other words, reciprocal crosses are not always possible. For example, I may cross a yellow bush scalloped squash with the summer crook-neck; but I have never yet been able to cross the crook-neck with the bush scalloped. Other cases of a similar nature are not infrequent. Why is this failure? Is it due to a constitutional peculiarity; to the form of the ovarium; to a weakness of the pollen of the one species or variety, or what may be the underlying cause? The question is yet one of the unsolved problems."

Digitized by Google

JAPAN PRIVET HEDGES.—Adversity has its useful lessons as well as its afflictions. Under the late phenomenal drouth, many plants succumbed. Strange to say, the Japan Privet stood the ordeal unharmed,—and this, too, in situations where it seemed hardly possible anything could live. Along a portion of the grounds of Mr. A. H. Mason, in Germantown, there is a deep cut. The sloping bank, seen in the picture, extends along the top of this cut, and is supported in some places by a wall of eight or ten feet. Along this bank is the dwarf Japan Privet hedge; nothing could be more unpropitious in such a season,—but not a leaf gave out.

HEDGES OF JAPAN PRIVET.
(On the grounds of Mr. A. H. Mason, Germantown, Philadelphia.)

There is no need of a hedge for protection here. It is used, as a frame would be to a picture, to give a finish to the grounds. As seen here, it excites universal admiration.

SWAMP PLANTS ON DRY GROUND.—It is remarkable that, with very few exceptions, plants which are found naturally in wet or swampy places do much better when transplanted in comparatively dry garden ground. What is known as the Swamp Magnolia is a good illustration of this. Nowhere in its native swamps can any one see as large or healthy plants as are to be seen everywhere in gardens. The explanation is that the plants are in obedience to the law of nature that everything should be made use of. The swamps have to be made use of by nature as well as dry land, and it has been so ordered that the seeds of certain plants shall only sprout in comparatively moist places. The trees have, of course, to continue their existence where the seeds sprout. Nearly all the swamp plants that are found to grow so well in dry ground will not have their seed grow under such circumstances. The seeds themselves have to be planted in situations similar to that in which the plants grow naturally. Swamp maple, swamp magnolias, and the native holly are examples of plants found in swampy places, that flourish in dryer ground.

RUDYARD KIPLING'S WINDOW GARDENING.—A Brattleboro, Vt., correspondent says:

"Rudyard Kipling, the novelist, has built him a cottage under the brow of a high hill in Vermont. In it is a window overlooking a vast stretch of country across that State and the neighboring State of New Hampshire. A distant view, with little or no foreground, the country sloping rapidly toward the Connecticut river. Out of the woods on this hill, he has taken young White Pines, a foot or so high, and placed in boxes before that window which dominates the above view. It was a revelation to me how nice young evergreens look in winter in pots and will grace a window."

Digitized by Google

TRIMMING STREET TREES.—The scandalous heading back of street trees, when they are regarded as too large for special purposes, is regarded as an American barbarism. At any rate, it is not uncommon to hear the remark, in such cases: "Oh! if we had horticultural knowledge so generally diffused as they have in England!" But it would seem tree-barbarism still exists in the Old World. The following is extracted from the London *Gardeners' Chronicle*, not merely to show how ignorantly some beautiful plane trees were butchered, but for the sake of the excellent suggestions as to the proper methods to be pursued in such cases:

"Those persons who were employed by the Vestry to carry out the work possessed but a scintilla of the principles on which tree-pruning is based, for the whole of the branches have been most severely cut back, and the trees will long remain in evidence of the incompetence of the workmen or their employer, we do not know which. The proper method of pruning in this case would have been to cut back the longer branches to a well-placed lateral shoot, which should not have been shortened or touched in any way. By doing this to every leading branch, the heads would have been greatly reduced in diameter, whilst their natural contour would not have been spoiled. Moreover, all branches of such a size as to render the use of the pruning-saw a necessity, should be pared over—both the wood and bark—so that the healing-over processes may be carried on without hindrance, and no rough surface left to form a lodgment for water. The cuts, whether of knife or saw, should be so given, that the exposed surface is not directed upwards, but slanting-wise, or facing directly downwards; and the larger surfaces should be painted of a slate-color."

FORESTRY.—A New Jersey correspondent says:—

"I have a strong desire to study forestry, and the alarming rate at which our forests are being mowed down convinces me that a thorough knowledge of that study should be acquired by more of our young men. I therefore write to you for information knowing that you can advise me better than any one else I know of."

Forestry, as a branch of agriculture, should be defined as getting the largest possible profit from a given area of land within the shortest time. Forestry, as understood by current literature, is a certain something connected with national interests, wholly aside from questions of individual interests in the way of a profit and loss account. These two lines have been somewhat confused, and there have been little favorable results from the forestry movements. For the first line of study, a practical acquaintance with the various species of forest trees is desirable,—the best methods of securing rapid growth, and, of pruning or planting so as to secure good logs. For the latter branch the work of Minister Marsh, entitled, "Man and Nature." is a leading text book.

THE ODOR OF THE AILANTUS.—In a memorandum on the ailantus, Mrs. S. D. Munro, Buffalo, N. Y, remarks:—

"A note about the odor of Ailantus trees leads me to say that for years we had one (female) within twenty five feet of our windows, and never knew it had an odor. Then a neighbor built close to our line, and next July complained bitterly of the odor of the tree, which was close to his windows. But it was found that this lasted only a few days—a week or so—and, as the tree was beautiful and valuable, it was not cut down. No other tree is near this one, yet seedlings continually root and get very strong before they are observed and pulled up."

PRIVET BERRIES IN INKMAKING.—A Philadelphia correspondent says:

"The privet is now used in the manufacture of ink. When living in Warwickshire some years ago, my uncle had such large hedges of privet with bryony and haws, and the effect was very fine. The privet berries were so large and fine. One day I saw several girls cutting off all the privet berries, and he told me they were employed to do so by the inkmakers of Birmingham. As we drove about, around Southbey and Leamington, we saw boys and girls picking everywhere."

CHRISTMAS TREES.—The great street railway strike in Philadelphia operated against the sale of Christmas trees. Those who usually bought, had no money. It is estimated that ten thousand, at least, were unsold..

Digitized by Google

BEAUTY OF THE OAK.—Although the great beauty of the oak is in its foliage and habit of growth, a large number of them have additional charms in the fall of the year, by reason of the brilliant color of their foliage. It is remarkable that nearly every American oak will change to some peculiar shade of brilliancy, from lemon to yellow or deep crimson; while the species from Europe all die away of a green color. It is a characteristic difference between the trees of the two countries. In planting, therefore, for colored-leaved foliage in the fall, one may take almost any species of American oak, feeling sure that it will in some degree add an interest to the autumn coloring.

GRAFT SCIONS.—If grafting is contemplated this coming spring, the scions should be cut during the winter,—certainly not after the buds begin to swell in early spring. Choose stout, healthy wood of last season's growth; bury them in sand or damp saw-dust and keep them in a cool cellar. The operation of grafting is performed in the spring, about the time the buds on the trees are bursting, and may be continued to mid-summer provided the scions have not started into growth.

THE CACTUS DAHLIA.—Mrs. Seliger notes that this class of Dahlia appears to be more tender than the old kind.

JOHN BARTRAM'S WOOD-SHED.—SEE PAGE 17.

CLEMATIS DISEASE.—There is a disease that afflicts *Clematis Jackmanni*, for which no one seems to have found a remedy. Some microscopic fungus attacks it near the ground, and the whole plant turns black in a short time, from the effects of the ferment matter circulating through its system,—just as a similar fungus operates in the case of the disease known as Fire-Blight in the pear. A large number planted every year die from this trouble. A correspondent believes that if the plant gets safely through its first year of planting, it is always safe. That a plant several years old never suffers. Does any one know of an old one killed?

WILL ELECTRICITY FROM WIRES KILL TREES.—According to a jury in a legal trial at Pittsburg, it was decided that electricity from an alternating current would not kill a street tree. The plaintiff did not get the $2500 he asked for. In this case the wire had cut into the tree, and a point was made of this.

NEW OR RARE PLANTS.

CEREUS TRIANGULARIS. — The beautiful specimen of *Cereus triangularis*, illustrated on page 5, is from a photo kindly handed in by Mr. G. B. Winslade, of Mamaroneck, New York. Like so many of the long-tubed

Digitized by Google

cactuses belonging to the genera *Cereus*, *Echinocereus* and *Echinopsis*, it is a night-bloomer. Mr. W. kindly furnishes the following account of the plant's remarkable performances:

"Number of flowers on night-blooming *Cereus triangularis*, two plants: In 1892, 65 flowers; 1893, 100 flowers; 1894, 106 flowers; 1895, 188 flowers. Total 459.

The two plants are each in 7-inch pots, but the roots have gone through bottom of pots, into the soil of the bench on which they stand (the pots set on two bricks placed on the soil), which is covered with a layer of ashes (for standing pots, etc.), into which they root freely. The plants are supported on wires running lengthwise of glass partition at back of greenhouse, covering a space of 7x16 feet. The situation is full sun exposure without a particle of shading. The plants are about ten years old, raised from cuttings, are watered plentifully during the growing season, but kept moderately dry during winter, only getting moisture from the watering of pots standing on the ashes. Temperature, 50 to 55."

GEORGE S. CONOVER CHRYSANTHEMUM.—Some specimens of George S. Conover Chrysanthemum, which a Rochester firm dedicates to the well known enthusiastic horticulturist of this name at Geneva, New York, come to the conductors' table. There are now so many large yellows with admirers, that it would not be a bad idea to have them all together in a tournament some time. It would not be surprising to see the George S. Conover come out ahead.

RECOLLECTIONS OF THE VERBENA.—I was very much pleased on reading the article in your MONTHLY on the verbena. We *old men* do not like to see all the old favorites discarded to make way for new plants, that "in many cases" are not near so interesting as our old time flowers. I well remember the first time I saw the *Verbena melindris*, and thought it the prettiest flower I ever saw. At that time, I was an apprentice with my father, and the verbena was planted in a small, round bed. In the autumn, after we had taken all the cuttings needed, my father told me to cover it with a few leaves and straw. The following winter, being exceptionally mild, it stood the cold, and flowered better the following summer. That is the only time I have known any one of the family to stand the winter. When Robinson brought out his "Defiance" we thought there was no other improvement possible; but to-day, I should value a plant of *old melindris* more than any other. S. HENSHAW.

FLOWERS OF THE SAGO PALM.—Although not a "new or rare plant," the Sago Palm is rare in a flowering condition, though it is probable that it is often in flower unknown to observers. In many cases the plants present a fluffy appearance at the apex, with what appears to be an unusually large number of young leaves, which never seem to go beyond a certain brief stage of development. These are really undeveloped leaves or bracts, though unlike bracts in general, which are at the base of the pedicel or flower branch, these are collected into a head above the flowers. The writer has never met with a male flowering plant. It is not unlikely that in the male these bracts would be reduced to mere scales, with the stamens in their axils. The fruit in the female plant appears as nuts of about the color and size of a chestnut; but, for want of fertilization, are always hollow under cultivation. One which has recently flowered in England, has been illustrated in the London *Journal of Horticulture*, and is reproduced here.

FEMALE FLOWER OF THE SAGO PALM.

COLLECTIONS OF GENERAL PERRINE.—The great collection of orchids and other rare plants, which gave thirty years of pleasure to the late General Perrine, of Trenton, New Jersey, were recently disposed of by auction to other flower lovers.

Digitized by Google

FRUITS AND VEGETABLES.

PEAR GROWING IN LOUISIANA.—The readers of the MONTHLY will no doubt be interested in the fact that Northwest Louisiana is one of the best regions in the United States for the successful growth of the pear.

Their vigor, longevity, prolificness, are abundantly tested in the hardiness and abundance of the trees in every place where found. They receive no care, live long, and bear prodigiously. It is astonishing how this most valuable fruit flourishes uncared for. The writer makes this assertion with all deliberation. If other localities assert that nothing but the leathery and insipid Le Conte and Kieffer will succeed with them, so be it. But the writer will engage, to satisfy any thorough horticulturist, that Northwest Louisiana is a superb pear country. And, therein, is wrapped up one of the most inviting opportunities in the South, for the cultivation of this most superb and profitable fruit. The following varieties may be relied on, and are alleged by a most competent authority, to be even a greater success than the Kieffer or Le Conte, viz: The Howell, Winter Nelis, Duchesse d'Angouleme, Seckel—but it is worth while to be more specific in a matter so important, and the practical horticulturist will value minuteness.

Doyenne d'Eté stands climate well, but is not profitable. Beurre Giffard fine grafted on trees of bearing size. Seckel does well; and everybody ought to have it. Winter Nelis magnificent, and endures. Duchesse d'Angouleme, a success, either dwarf or standard. Bartlett fruits splendidly, but blights—as everywhere. Buffum tree all right; but fruit not profitable. Lawrence splendid pear, but fruit very tender. Madelaine on dwarf, has stood through everything. Bears regularly, and heavy, (loaded down) but tree (of course) slow. Belle Lucrative bears heavily. Never dies. Sheldon magnificent pear; fruit perfect, but tree very slow. Japan Golden Russet, bears early and enormously. Tree hardy, good cooking pear. Doyenne Boussock, fine in every respect, except tardiness in bearing. Winter Nelis, fine and luxuriant—fruit and tree. Early Harvest, early—as good as Kieffer. Lawson, on Le Conte stock, does well. St. Michael Archangel, most delicious fruit, but tree rather slow; but not as slow as Seckel, and tree quite as hardy. Tyson, magnificent pear; but tree not quite hardy, and very slow. Conkling, on Le Conte, fine in appearance, large, but no flavor. Clapp's Favorite, fine, smooth; thrifty, but tree rather tender. The Duchesse d'Angouleme is so splendid on standard, and bears such prodigious crops sometimes, as to kill itself by overbearing.

M. B. HILLYARD.

Shreveport, La.

THIN-SKINNED ORANGES.—It has often been questioned why orange growers will graft and plant varieties with thick skins when the great public appreciates a thin skinned one more highly. Asking a grower, if not one of the secrets of the orange growing trade, why this was thus, he replied that the thin-skinned kinds were rarely as productive as the thick skinned ones,—that the public would give no more for a box of thin skins than for a box of thick ones,—and as there was consequently more profit in growing orange skins than in growing orange flesh, the skins carried the day.

We have never heard such an explanation before, and this may be only "chaff." Still, the great question remains, why do orange growers graft and plant thick skinned sorts, when the thin skins are preferable?

THE RHUBARB AS A VEGETABLE.—After the rhubarb has served its purpose by giving us its leaf stalks in early spring, it often throws up an immense bunch of flowers. An English writer states that if this head of flowers is cut off, and treated like cauliflower, it is just as good and desirable. One would suppose that there was something of the acid taste of the stalks in this flower head; but this writer says not. Many plants have a great difference between the elements in their flowers or fruit and the leaves. We can, for instance, eat a tomato, and find it both healthful and agreeable; but, if we were to venture to eat a handful of tomato leaves, they would probably be the end of us. Those who are on the look-out for new vegetables might, however, make a trial of the rhubarb flowers. It may be noted that the tomato is very closely related to the tobacco, and equally poisonous with that celebrated plant.

Digitized by Google

LARGE AND SMALL PEACHES. — Nature loves variation. Individuals of a species are never exactly alike; but there are bounds beyond which individual variation cannot go. When the individual reaches this limit, it hastens to get back again. Seedlings of a comparatively small peach are generally larger fruited than their parents; but after one has reached an unusually large size, seedlings from that are usually smaller. This is the reason that peach stones from seedling trees are usually smaller than peach stones from grafted trees. The customer in the market wants large peaches, and hence the peach orchardist has to graft the large kinds, so as to be sure of what he has. But this is usually at the expense of a very heavy crop. Where abundance is a point, rather than fine fruit for retailings, as in some districts in the South, seedling peaches are preferred to the grafted kinds.

THE GRAND DUKE PLUM.—There are few better plums, among modern introductions, than the old Green Gage, and others that have been equally well known for a generation or two; but occasionally a new introduction holds its own. An English plum, named the Grand Duke, is one of those fortunate survivals. Although raised by Mr. Thomas Rivers, who has not for so many years long passed away from us, it is yet considered one of the best. Mr. S. D. Willard, of New York, who is our leading authority on American plum culture, considers it one of the best late varieties. He says it is a very abundant bearer, has large and beautiful fruit, and comes into bearing about October the 10th. Its only defect is that it is not a vigorous grower. The tree dealer must have vigorous, strong-growing trees, in order to get a purchaser to buy; and a tree that has a slender looking habit of growth finds few purchasers, hence the Grand Duke is not very well known among those who raise plums for market.

THE CURL-LEAF DISEASE IN PEACH TREES.—The readers of MEEHANS' MONTHLY certainly well understand that the larger proportion of the diseases of fruit trees come from the operations of many small species of fungus. One of the worst of these fungus organisms is the one which causes the disease known as the blister, or curl-leaf. It has been dignified by a good botanical name, namely, *Exoascus deformans*. Like most of these troubles, the little fungus plants originate from a seed, or, more strictly, a spore which lodges on the leaf, through the medium of the atmosphere, and there germinates, the result being the well-known moldy appearance which is associated with the curl. It appears on the leaves soon after they push out in spring. Later, towards fall, new leaves appear, on which the fungus does not operate, as its season for work is in early spring; but the loss of its early crop of leaves is a great blow to the vital power of the tree, and the crop of fruit which follows is generally inferior and defective. A peach tree is generally not so large as to be difficult to spray, and the solution known as Bordeaux Mixture, sprayed over it as soon as the earliest intimations of the existence of the trouble is perceived, proves a certain cure. Careful experiments have fully determined this.

SWEET PERSIMMONS. — "To pucker ones lips as by a persimmon," is a proverbial saying. Every one knows how astringent a persimmon is before frost or anything that hastens fermentation has touched it. Sometimes the tree has within itself the power to start fermentation, independently of frost action, and when this is the case the persimmon is edible long before frost arrives. Other fruits are of the same class. The medlar is a famous German fruit, not far removed from the apple,—but it is as astringent as the persimmon until it begins to decay, then it is admirable. Frost is not called in to aid decay in this instance,—it is simply set aside until it begins to decay naturally. It does not seem a nice phrase, however, to say that "a medlar is not good until it is rotten." The French have a more polite term for it. They say that the medlar is fit to eat as soon as it is bletted. We might with propriety adopt this word for the persimmon. It would sound very well to say that the bletted persimmon is good to eat.

THE LOUDON RASPBERRY.—Mr. Charles E. Whitten, of Bridgman, Mich., regards this new red raspberry as one of the best late varieties that have been introduced. He says it ripens about the same time as the Cuthbert, and is larger than that well-known variety, and a remarkably productive bearer.

Digitized by Google

THE SENATOR APPLE.—A very heavy apple and of remarkable beauty has been received from Stark Bros. Nursery and Orchards Co., Louisiana, Missouri. It is almost impossible to judge of comparative difference from existing kinds, on account of the great number that have been introduced, without a large number of wax or plaster specimens such as have been made for the United States Department of Agriculture. They regard it as distinct in many respects. We have had a cut made from an average specimen, and append the report of Prof. S. B. Heiges, Pomologist to the Department:

SENATOR APPLE.

"Specimens of the Senator Apple have been received at this division from three sources this season, all being similar in color and markings, and slightly variable in form.

The general form of the Senator is roundish oblate, of large size; surface smooth, glossy; color nearly a solid red with prominent russet dots; stem medium in length and thickness; basin regular, large, deep, furrowed; calyx segments short, generally converging; flesh yellowish white, tinged red, medium fine, granular, very tender, juicy; core small, closed; flavor sub-acid, rich; quality good to very good.

Compared with a well-known variety, as the Jonathan, it scarcely equals it in quality. I should judge it would reach its prime about Thanksgiving. From a comparison of all the specimens that we have received, it appears to bruise easily.

The highly pink tinged flesh of some specimens would be objectionable for cooking purposes.

It is a handsome market variety."

This report accords with our own examination, except that the dots as well represented in our drawing are grey, and not russet,—and there may be some doubt whether the pink tinged flesh would be generally objectionable, though in some cases, the partaker of apple sauce or stew may suppose some extraneous matter had been allowed a place in the dished article.

PEAR CULTURE IN ILLINOIS.—Mr. Benjamin Buckman, of Farmingdale, Illinois, says:

"It is *very* hard to find a variety of pear that will succeed here on account of blight. I have tried a great many kinds, and am not certain yet that pear growing will be profitable here."

Digitized by Google

A SUBTERRANEAN VEGETABLE GROWTH.—Mr. Timothy Wheeler, Moscow, Vermont, writes:

"I have another curious vegetable growth, just found in the woods by a nephew of mine, E. W. Dillingham, who is always watching for natural curiosities. The vegetable is *all roots*, with *no top* whatever, and there are no signs that it ever had a top, and it was not broken off of anything else.

The thing (I know not what to call it) laid flat on the ground, just under the top-soil, and covered a space more than 2 by 3 feet. The whole plant will not average two inches thick.

There are two round bulbs, as round as balls. One of them is two inches and one half in diameter, and the other is one inch. This small one has roots on one side of it, with nothing on the other side; while the large bulb has roots on two opposite sides, and it has no signs of any top.

The whole thing was under the surface, and it would not have been found, but for the snaking of logs over it.

The two balls are six inches apart, and they both head the same way; they are connected by a root three-fourths of an inch in diameter.

The bark on the bulbs looks like birch wood.

Each bulb has two main roots, though one of them is the *connecting* root."

The senior conductor of the MONTHLY has never helped to dig up an old plant of the "Man of the Earth"—*Ipomœa pandurata*. But from the wonderful "travelers' tales" connected with these roots, this may be a real case. From all accounts the roots really take on strange shapes sometimes.

THE TANGERINE ORANGE.—In the markets a somewhat flattened form of orange is sold under the name of Tangerine. A recent author notes that in many flowers there is a tendency to grow from the centre and produce other flowers. This is often seen in garden roses and others. This tendency exists to a marked degree in the orange, and a small orange inside, or at the apex of a large orange, is not unusual. In the kind called the "navel orange," the secondary orange is only rudimentary,—but it gives the character which suggests the name. In the Tangerine, the secondary is the only orange produced, the primary orange, as we generally know it, being wholly suppressed. In many cases in the Tangerine variety, an attempt at a third may be noticed. Nature makes the different species of plants out of a very few original pieces. Some are suppressed and others enlarged. She makes the lemon—a different species of *Citrus*—by an attempt at elongation. The thickened point of the lemon, and which gives it a special character, is in all probability the rudiment of a second lemon, produced at the apex of the primary or general one. It would not be surprising to find monstrosities on the lemon trees, where the secondary has assumed something more of a lemon-fruit character.

CASSABANANA.—Under the name of Cassabanana, Southern papers speak highly of a new vegetable of the cucumber or gourd family. It is a rapid climber, and "the fruits are the shape and size of bologna sausages, twelve to eighteen inches long, and three to four inches in diameter, and of a bright scarlet color when fully ripe, and have a strong fragrance of the pineapple—indeed, so strong is its aroma that it will scent a whole building with its delightful odor. It requires a long season to perfect and produce an abundant crop, ripening here from August to away after frost. In the North the seeds should be started in pots early in the spring, and set out in open ground when danger of severe cold is over. The keeping quality of the fruit is something remarkable. They kept sound until January following, and we made some nice preserves with them."

EARLY APPLES.—It is sometimes said that early apples are not much cared for, because so many other fruits come in about, or soon after, midsummer, that the apple is quite at a discount. But a friend, who has a great variety of fruits in his garden, claims that he would badly miss his Red Astrachan Apple tree, which is in use from the middle of July to the middle of August. He remarks that few kinds are good to eat and good to cook at the same time.

WINTER BARTLETT PEAR.—Under the name of Winter Bartlett, the fruit growers of Oregon have a variety of pear which is said to be in every way the peer of the original Bartlett, and it is being extensively planted. It is probably a sprout, and not a seedling.

Digitized by Google

BIOGRAPHY AND LITERATURE.

WINTER THE NURSERY FOR SPRING FLOWERS.

Death wished to borrow something of thy grace;
And now that thou art lying 'neath the snow,
The grave that holds thee seems a favored place,
Where one might willing go.
But life is not so rich in things divine,
That it would part with such a soul as thine!

A voice of comfort breathes from sorrowing Earth;
If winter is the nursery of flowers,
If purity and loveliness have worth
Beyond this world of ours,
If there is pity for the tears we shed,
If any truly live—thou art not dead!

—FLORENCE EARLE COATES.

In Memoriam on the death of Helen Bell.

JOHN BARTRAM'S WOOD-SHED.—The house in which America's great botanist, John Bartram, spent his life, and which he built with his own hands, has become familiar through the work of the pictorial artists. Why not give the wood-shed which he also built,—for before the discovery of coal, a wood-shed was as important a part of a dwelling house as the dining-room or bed chamber. It was for a long time his potting and packing shed, and doubtless most of the cherished plants of Collinson and other English worthies saw the light of America for the last time here. Professor Trelease seems to have thought it worth taking, as he has kindly given us the photograph from which the cut, see page 11, has been made. It was in this shed the notes for the work published in 1853, describing all the trees then growing in Bartram's garden, were made. The writer of that work lived a mile from the garden. To save his time, the offer to fit up a room in this wood-shed was made and accepted. It is interesting to note on how slight occurrences the course of human events seem to turn. While engaged on that work the author was stricken with typhoid fever. As it was considered improbable that he would live till morning, a verbal will was made in the evening, the chief legacy being his copy of Lindley's "Vegetable Kingdom" to a fellow botanist, who has himself long since passed away. But again the Hand-book of Ornamental Trees, or the trees of Bartram's garden, was in danger. In the successful effort to save human beings from drowning in a wreck, a nail was driven through the left hand, and lock-jaw finally threatened but was defeated, and the author lived to do this much honor to Bartram's name and Bartram's work. It seems odd that some forty-four years after these events Professor Trelease should be able to have the author's outline in a picture of John Bartram's wood-shed.

GEORGE BARCLAY.—In the November number of your journal, under *Coreopsis grandiflora*, I quote: "Of Barclay, whose name is connected with the plant, little more is known than of the early history of the plant itself." I find in "A Biographical Index of British and Irish Botanists," p. 11, the following accounts:

"BARCLAY, GEORGE (fl. 1835-41): b. Huntley, Aberdeenshire; d. Buenos Ayres. Kew gardener and collector. H. M. S. 'Sulphur,' 1835, to Chili, Peru, Panama, Sandwich Isles, Nootka, etc. Plants and MS. Journal in Herb. Mus. Brit. Gard. Chron., 1882, i. 305.

BARCLAY, ROBERT (1757-1830): b. 1757; d. 22 Oct, 1830. F. L. S., 1788. Of Clapham and Buryhill, Surrey. Had large garden. Hook. Exot. Fl. 166. Originated 'Bot. Mag.' (see dedication to vol. liv.) Pritz. 14; Bot. Misc. ii. 122. Portr. at Kew. *Barclaya* Wall."

As the two Barclays seem to have been somewhat mixed up, I thought the above data might be of interest to you. It will be seen that Robert Barclay died several years previous to the voyage of the "Sulphur," consequently the original plant referred to could not have been collected by that expedition.

LORENZO G. YATES, F. L. S.

Santa Barbara, California.

MISSOURI BOTANICAL GARDEN—SIXTH ANNUAL REPORT.—In addition to the usual series of matter useful alike to the botanist and the gardener, this is especially valuable by a monograph of the interesting genus of aquatics,—the *Sagittaria*.

Digitized by Google

THE RUSSIAN THISTLE IN CALIFORNIA.—Mr. Charles H. Shinn has issued a paper, in Bulletin Number 107 of the Agricultural Experiment Station, of Berkeley, California, showing that this great pest of the agriculturist is getting a hold in that state. As there are already weed laws in California, it will be well to note how far these are practiced in suppressing the advancement of noxious weeds. Mr. Shinn says that so early as 1872 the legislature passed an act imposing a fine of one hundred dollars for allowing the Canadian Thistle to mature its seeds, and that in 1891 and '93 the supervisors of roads had plenary power to provide for the destruction of noxious weeds and insects injurious to fruit trees In 1893, another act was passed, which provides for the eradication of weeds by city councils or trustees of any municipal body, which provides that all weeds liable to be spread may be regarded as a public nuisance, and that the proper officials may clear ground of such weeds and charge the expense against the owner. Mr. Shinn says that there is law enough in California to provide for the eradication, at the early stage, of the Russian Thistle.

THE FLORA OF MOUNT DESERT ISLAND.—The "Flora of Mount Desert Island" was issued last year, by Messrs. Rand and Redfield, the latter of whom has since died. Mr. Rand naturally feels reluctant to have it believed that the positions of the authors' names were by any act of his own. It was only by Mr. Redfield's insistence and persistence, that it was not published as the work of Redfield and Rand, instead of Rand and Redfield.

Some comment has been made on a point referred to in the Memoirs of Mr. Redfield recently issued by the Academy of Natural Sciences, of Philadelphia. In that Mr. Redfield's views on the Nomenclature question are presented from the impracticability of enforcing the priority rule, after names have once been generally accepted. His friends think that his well known objection to the principles underlying the proposed change should have been presented as well as his objection on the ground of impracticability.

GRAY'S SYNOPTICAL FLORA OF SOUTH AMERICA.—Many years ago Dr. Torrey and Dr. Asa Gray started to write a Flora of North America, but before the second volume appeared, the explorations of new territory brought to light so many new species that the book had to be held back in order to describe the many newly discovered plants. Not till the later years of Dr. Gray's life did the gathered material seem to warrant a resumption of the great task. His strong desire was that he might live to finish the task, but death overtook him before it was accomplished. But Sereno Watson and Dr. B. L. Robinson stepped into the vacant chair in the herbarium of Harvard, and though the former has also departed, the work begun by the beloved Gray is still going on. Fascicle 1, of vol. I, part 1, has appeared. It completes the Polypetalous orders from *Ranunculaceæ* to *Frankeniaceæ*. It is a welcome New Year's present to American botanists.

DR. F. P. PORCHER.—Another able and eminent botanist, Dr. Francis Peyre Porcher, passed away in Charleston, South Carolina, on the 20th of November, in his seventieth year. He was medical Director of the armies of the Confederacy during the Civil War, and the straits to which the Southern army was reduced led to a good use of Dr. Porcher's botanical and medical knowledge. The practical information he himself gained was all embodied in a work subsequently published, entitled, "Resources of the Southern Fields and Forests," which ranks probably among the most valuable contributions to American medical and economic botany issued in our country. He was born in St. John's, Berkeley, on December 14, 1825, and was mainly educated in Charleston,—though his education was completed in France.

CALVERT VAUX.—After having disappeared from the home of his son for several days, the body of Calvert Vaux, the famous landscape gardener, was found in New York Bay, November 19th. He had been suffering mentally for some time. Landscape gardening in America took a great stride forward under the lead of Downing and Vaux, and possibly New York to day would have been without its celebrated Central Park but for these two distinguished men. As Olmsted and Vaux, he was little less celebrated. He was born in London, England, December 20, 1824, and came to America in 1848, so that he had nearly completed his 71st year.

Digitized by Google

IRRIGATION FARMING.—A handbook for the practical application of water in the production of crops, by Lute Wilcox, New York, published by Orange Judd Company.

When Colorado and Utah were first opened up to settlement, few matters amazed the writer of this paragraph more than the enormous crops produced under irrigation. But the secret soon became an open one. Dry earth has the power of absorbing ammonia from the atmosphere. Here was dry desert land, which, for years, had been absorbing ammonia, until it became a perfect bed of nitrogenous manure. Nothing but a little water was needed to set it going. Under rain-fall cultivation, the agriculturist gets too much or too little rain,—but the intelligent irrigationists can apply water or withhold it at just the acceptable time. This little book enters fully into irrigation matters.

APGAR'S TREES OF THE NORTHERN UNITED STATES.—Under this title, a book has been published by the American Book Company, of New York, prepared by Professor Austin C. Apgar, of the New Jersey State Normal School, for the use of schools and private students. Its main object is to describe and determine trees by their leaves and branches when out of flower. It will be found a very useful aid in this direction. It is not confined to trees of the United States, but includes many exotics in cultivation. No one can determine positively the name of a tree by a leaf and branch alone; but in some cases they may, and in all cases the book will aid. It possesses the great value of furnishing useful and instructive object lessons to classes, where ordinary botanical works would be useless.

PRANG'S CALENDARS AND GREETING SOUVENIRS.—Housekeepers, as well as office workers, require calendars,—but few are issued satisfactory to the dwellers in tasteful homes. Prang has met the requirement by issuing beautiful productions which will be welcome to housekeepers. Combining the useful with the beautiful they will ornament any drawing-room table, where they will be for reference. The violet calendar is embellished with violets arrayed in varied forms. The "Happy Childhood" calendar is truly poetical, as well as artistic. The little girl begins her spring life by chasing butterflies. As she grows, even the beloved "dolly" is put behind when the roses blow,—and she closes her year of life by armful's of substantial fruit. The poet's calendar has striking portraits of America's worshippers of nature—Whittier, Longfellow, Bryant and Emerson. Among the souvenirs are a "Posy of Sweet Peas," "Pansies," "Roses," etc. Presumably they can be found in leading book and stationery stores. For New Year's presents, Easter reminders, or souvenirs at all times or any special time, there can be few more acceptable ones.

PROF. J. G. LEMMON.—A correspondent writes that this estimable gentleman and his wife, to both of whom the world is so largely indebted for a knowledge of California botany especially, as well as the botany of other sections, have removed from Oakland to North Temescal, California. He adds "it will well repay Eastern visitors to visit the Lemmons' Herbarium."

GEO. SUCH.—By a note in *Gardening*, we learn of the death of one of the greatest lovers of flowers, Mr. Geo. Such, of South Amboy, New Jersey. No date is given, but it seems to have been in the early part of November. Few amateurs did so much to encourage a love for rare flowers, and his name ought to have a warm place in the history of American gardening.

WINDOW AND PARLOR GARDENING BY N. JONSSON-ROSE, published by Charles Scribners' Sons, New York.

Books on window and house gardening have been numerous. This new candidate for popular favor is remarkably plain in its directions, and especially instructive. It is really the best effort of the kind that has come to our attention.

AMERICAN GARDENS AND GARDENING.—A new work, under the title of American Gardens and Gardening, has been projected by Lucius D. Davis, of Newport, R. I. The illustrations will be an especial feature, and the beautiful gardens about Newport will be among the first described. It is intended to be issued in monthly series, with the view of ultimately binding as a whole.

Digitized by Google

GENERAL NOTES.

THE NEW VOLUME OF MEEHANS' MONTHLY.—To furnish botanically accurate and artistically drawn illustrations of the flowers and ferns of the United States, at a surprisingly low cost, is an idea that originated with the eminent lithographer, Louis Prang, and which was finally decided on during the National Centennial. It is not too much to say that it was received with national pride. Nothing like it at the price was ever attempted in any part of the world. The sudden and unexpected death of the managing partner in the enterprise, Charles Robson, threw the plans into confusion. The publication suddenly rested. No book publisher would take it up "because most of the profit would go to the lithographer,"—lithographers would not take it "because they were not book-publishers." Most lovers of gardening were also lovers of wild flowers. There seemed to be a wide field open for the spread of gardening knowledge for the pleasure that gardening afforded, and these facts suggested the combination which resulted in the firm of Thomas Meehan & Sons offering MEEHANS' MONTHLY. It is a pleasure to feel that the effort is so well appreciated that the magazine will continue for all time. The conductors feel that the work is worth more than the subscription price, and that they are undertaking a task of national importance, fully justifying them in hoping that friends will aid all they can in making the work known. Copies that may be soiled, or lost, through being handed to friends for examination, will cheerfully be replaced.

THE GROWTH FORCE OF PLANTS.—Under caption of "How a Birch Seed Defied Her Wish," the New York *World* has the following:—

"There is in an old churchyard on one of the principal avenues of Hanover, Germany, an ancient grave which has met with a somewhat peculiar fate. One hundred and thirteen years ago it was dug to hold all that remained mortal of Henriette Julianne Caroline von Ruling. The tradition of Hanover is that Frau von Ruling was a beautiful woman in her day, and that, fearing, by some chance, her grave might be opened, and her moldering corpse displayed to view, she took the precaution to keep the seal of her tomb unbroken.

At the back of the massive monument, cut deep into the base of the pedestal, are these words: 'This grave, purchased in perpetuity, shall, to the end of time, never be opened.'

By a strange fate, into the earth that was shoveled over her coffin, fell a birch seed. As time passed on, a shoot pushed itself out between the stones of the massive monument, and then came a struggle between the growing wood and the ponderous slabs. A century passed, and the tree won. Bit by bit, it split and burst open the great monument, and upheaved the great base stones, exposing to view the grave that was always to be concealed and kept tightly closed."

This was sent by a correspondent for comment. It is possible a birch seed might find lodgment in a little mortar crevice, on the outside of the wall and then send its roots through, bursting open the wall by its growth force. This power can be evidenced by anyone who observes the roots of trees growing on rocky places. If there is any basis of fact in the story, it may be found here; otherwise, it would be absurd.

SCOLOPENDRIUM VULGARE.—In England, where this fern is frequent, it has numerous common names. One of these is "Button-hole," from the resemblance of the fructification in its young stage to button-holes. (See Britten & Holland's English Plant Names.)

C. F. SAUNDERS.

CANAIGRE.—This tuberous-rooted dock—*Rumex hymenosepalus* may throw oak bark out of the market for tanning fine leather. One ton goes as far as five tons of oak,—besides the saving of space over bark in storage. Florida farmers are planting it in the hope of having another profitable article of export.

Digitized by Google

LORD & BURNHAM CO.

HORTICULTURAL ARCHITECTS AND BUILDERS

STEAM AND HOT WATER HEATING ENGINEERS

Plans and Estimates furnished on application

Largest Builders of Greenhouse Structures. **Six Highest Awards at the World's Fair**

Send four cents postage for illustrated catalogue

LORD & BURNHAM CO.

ARCHITECTURAL OFFICE, 160 FIFTH AVE., COR. 21st STREET, NEW YORK.

Factory: Irvington-on-Hudson, New York

Mention Paper

GARDENING

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

BY

THE GARDENING COMPANY

MONON BUILDING, CHICAGO

SUBSCRIPTION PRICE, $2.00 A YEAR—24 NUMBERS

The most practical and valuable American Horticultural publication. DEPARTMENTS: The Flower Garden, Trees and Shrubs, The Greenhouse, The Window Garden, The Fruit Garden, The Vegetable Garden, Insects and Other Pests, Mushrooms, and others in season. See what subscribers say about this valuable journal.

"For condensed common sense in gardening matters, for reliable, unprejudiced and safe information, GARDENING cannot be surpassed, and although moderate in size it expands upon perusal." W. C EGAN, Highland Park, Ill.

"GARDENING is the best horticultural paper printed in America." CHAS L. BURR, Springfield, Mass.

"I am greatly pleased with the paper. It is practical and suggestive. Its reproduction of photographic views of plants, flowers and landscapes is a most admirable feature." W. M. JOHNSON, Hackensack, N. J.

"It is a delightful paper and has been very interesting and instructive to me." FRANK HITCHCOCK, Davenport, Ia.

"I have found GARDENING extremely useful and interesting. You have given your subscribers a great deal more than their money's worth." CHAS. E. BROWN, Yarmouth, Nova Scotia

"Such a publication was long needed in this country. Every line of its contributions is a lesson in itself to many professionals as well as to amateurs." JOHN BERRY, Gardener to Senator Wolcott, Littleton, Colo.

"I value GARDENING highly on account of the very practical character of its contents." J. A. PETTIGREW, Supt. Lincoln Park, Chicago

"I regard GARDENING as one of the most practical magazines issued in the interests of horticulture." W. F. MACARA, Waterville, N. Y.

"The paper is the most practical of any I read." W. E. ABBS, Fond du Lac, Wis.

"I subscribe to all the horticultural and floricultural journals on this continent as far as I know and find in GARDENING the most practical one for an amateur like myself." DR. GEO. T. HAWLEY, Corning, N. Y.

PRACTICAL. POPULAR. SCIENTIFICALLY EXACT.

Indispensable to all who love gardens or the literature of gardens; to all who own country places or take pleasure in rural scenery; to all who desire a broader knowledge of trees, shrubs, fruits and flowers. GARDEN AND FOREST stands for the protection of our forests, the preservation of natural beauty, for a purer taste in the design and decoration of public and private grounds, and is universally pronounced the best horticultural journal ever published for Americans.

"Wise, intelligent, entertaining."—*Harper's Weekly.*

"Rich variety of remarkable engravings."—*N. Y. Post.*

"Winning, delightful and accurate."—*N. Y. Tribune.*

"A compendium of new information."—*N. Y. Herald.*

BEAUTIFULLY ILLUSTRATED. WEEKLY. $4.00 A YEAR.

Specimen copy free on application.

Garden and Forest Publishing Co. Tribune Building, NEW YORK

WHEN WRITING TO ADVERTISERS, TELL THEM YOU SAW THEIR CARD IN MEEHANS' MONTHLY.

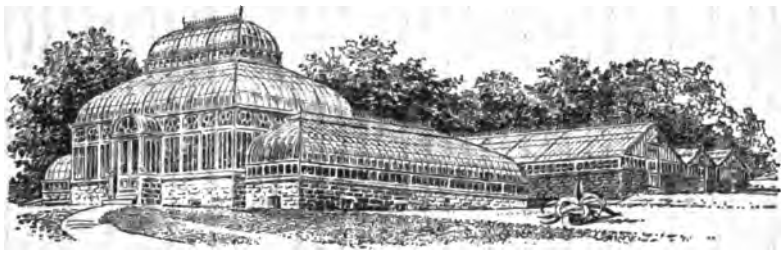
Digitized by Google

HITCHINGS & CO.

ESTABLISHED 50 YEARS

HORTICULTURAL ARCHITECTS AND BUILDERS

and largest Manufacturers of **Greenhouse Heating and Ventilating Apparatus**



The highest awards received at the World's Fair for Horticultural Architecture, Greenhouse Construction and Heating Apparatus.

Conservatories, Greenhouses, Palmhouses, etc., erected complete with our Patent Iron Frame Construction.

SEND FOUR CENTS FOR ILLUSTRATED CATALOGUES.

233 MERCER STREET, NEW YORK CITY

Landscape Gardening • • •

This branch of our business is under the personal charge of our J. Franklin Meehan, who has had a practical training in the cultivation of trees, shrubs and hardy plants, and who is well fitted to prepare and carry out Planting Plans, Road Making, Draining, Grading and all branches of Landscape Gardening.

THOMAS MEEHAN & SONS, Germantown, Phila.

EDWARD CAMPBELL

LANDSCAPE ARCHITECT AND ENGINEER

ARDMORE, - PA.

Sketch plans and planting maps prepared, and suggestions given for the laying out and improvement of country and suburban residences, public parks and grounds of every description.

Grounds laid out and their construction undertaken by contract or day labor, and carried out under strict personal supervision. The choice grouping and effective arrangement of trees and shrubs has been made a special study. Trees furnished and planted by experienced workmen.

Draining Plans and Surveys. **Fine Crushed Stone for Walks and Carriage Drives.**

HARDY ORNAMENTAL TREES, SHRUBS, VINES, EVERGREENS, AND HARDY HERBACEOUS PERENNIALS. The finest general assortment of Hardy Ornamental Plants in America. Two hundred page illustrated descriptive catalogue on application. Plans and estimates furnished. Send your list of needs for special rates.

THE READING NURSERY, JACOB W. MANNING, Proprietor, READING, MASS.

WHY USE PUTTY

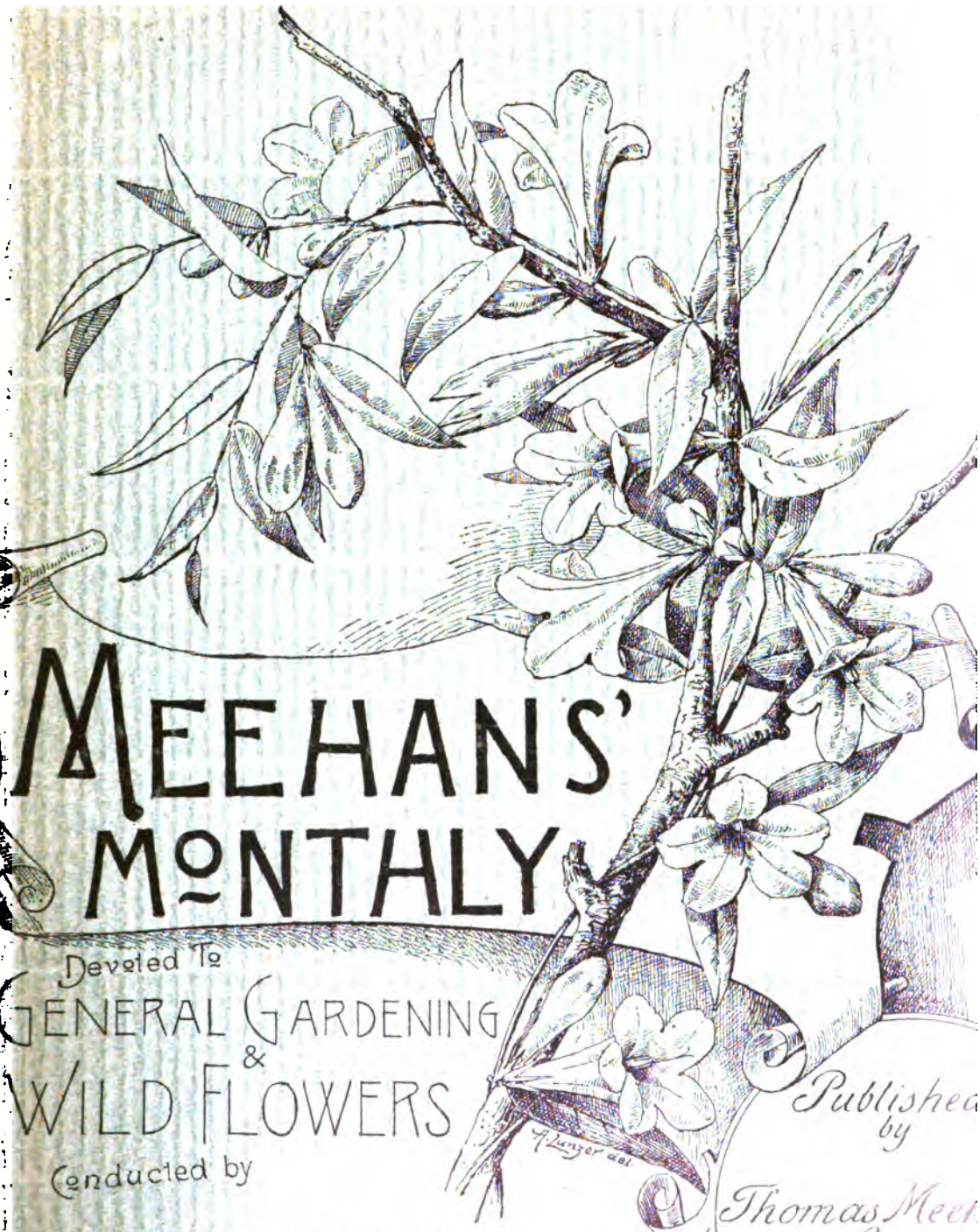
and wood sash bars on your iron greenhouse when **patent puttyless steel glazing** has reached **perfection**, at only a slight advance in cost. Send for catalogue.

JOSEPHUS PLENTY, Jersey City, N. J.

Digitized by Google

VOL. VI MARCH, 1896

ISSUED MONTHLY, $2.00 PER YEAR IN ADVANCE, SINGLE COPY 20 CENTS.



MEEHAN'S MONTHLY

Devoted To
GENERAL GARDENING
&
WILD FLOWERS
Conducted by
THOMAS MEEHAN

Published by
Thomas Meehan & Sons
Germantown
Philadelphia

COPYRIGHTED 1896

ENTERED AT THE PHILADELPHIA POST OFFICE AS SECOND-CLASS MATTER.

Digitized by Google

Meehans' Monthly

PUBLISHED MONTHLY BY

THOMAS MEEHAN & SONS,
Germantown, Phila.

Subscription Price $2.00 per year.

$1.00 for Six Months. Back Numbers 20 cts. Each.
Two Subscriptions for $3.50 per Year.

ADVERTISING RATES ON APPLICATION

Forms close on the 20th of each Month, preceding date of issue.

Address all Correspondence relating both to Editorial and Advertising matter, to

THOMAS MEEHAN & SONS, Publishers
Germantown, Phila., Pa.

"UP-TO-DATE"

SPRAY PUMPS

EXPRESS PAID

Satisfaction Guaranteed or Money Refunded. Endorsed by Leading Entomologists. 60,000 in use. We are U. S. Headquarters for Spray Pumps, and Insecticides. Catalogue, Spray Calendar, and full Treatise on Spraying, FREE.

$17 SPRAYING OUTFIT EXPRESS PAID, FOR **$5.50**

P. O. LEWIS MFG. CO., Box 127 Catskill, N.Y.

For Flowers Indoors.

Bowker's Flower Food.

A rich, concentrated fertilizer, odorless, made from chemicals; applied in solution once or twice a month, makes house plants grow vigorously and blossom abundantly.

A small spoonful for a 2-inch pot.
A larger spoonful for a 4-inch pot.
Enough for 30 plants 3 months, 25c.
Enough for 30 plants a whole year, 50c.

We pay the postage and send a book on "Window Gardening" free with each package.

Bowker FERTILIZER CO., 27 Beaver St., New York. 43 Chatham St., Boston.

NEW AND RARE PLANTS

Abutilon S. de Bonn, 20c.; New Bougainvilla, 50c.; New Caryopteris, 25c.; Crimson and Pink Clematis, 30c.; Royal Coleus, 30c.; Cape Fuchsia, 20c.; Peperomia, 25c.; Blue Solanum, 25c.; Schizocodon, 50c.; Strobilanthes, 30c.; Thyrsacanthus, 25c.; Kosteletzkia, 25c. etc. **New Crimson Rambler Rose, 30c.**

New Cannas, 25c.; White Canna, Pink Canna, 25c.; Black Calla, 20c; Yellow Calla, 75c.; Purple Calla, 40c. Golden Amaryllis, 50c; Blue Tigridia, 15c.; Rare Dahlias, etc.

New Golden Mayberry, 50c. Strawberry-Raspberry, 50c. New Raspberry-Blackberry, 50c.

Any three 25-cent plants for 60c.; 5 for $1.00
Any two 30 cent plants for 50c.; 4 for $1.00

100 Summer-blooming Bulbs, 12 sorts, $1.
100 Gladioli, from over 1000 varieties, $1

Hundreds of other rare plants and bulbs. Send at once for our illustrated catalogues.

A. BLANC & CO., 314-316 N. 11th St., Philada.

Small **Shrubs**

We grow Shrubs in large quantities and frequently have inquiries for small plants in considerable numbers. Our new Catalogue for Spring, 1896, contains full price list of these, as well as Trees, Evergreens and Hardy Plants.

Catalogue mailed for 6 cents in stamps.

Thomas Meehan & Sons

Nurserymen and Landscape Engineers — Germantown, Phila.

Standard Varieties

Raspberry and Strawberry Plants

Send for Price List

HYRE BROS.

Box 464 — DAYTON, OHIO

CYPRESS

IS MUCH MORE DURABLE THAN PINE.

CYPRESS SASH BARS

UP TO 32 FEET IN LENGTH OR LONGER.

GREENHOUSE

AND OTHER BUILDING MATERIAL.

Send for our illustrated Book "CYPRESS LUMBER AND ITS USES."

Send for our Special Greenhouse Circular.

THE A. T. Stearns Lumber Co., Neponset, Boston, Mass.

Digitized by Google

Digitized by Google

Digitized by Google

DICENTRA CUCULLARIA.

BREECHES FLOWER.

NATURAL ORDER, FUMARIACEÆ.

DICENTRA CUCULLARIA, DE CANDOLLE.—Scape and slender-petioled leaves from a sort of granulate bulb; lobes of the leaves linear; raceme simple, few-flowered; corolla with two divergent spurs longer than the pedicel; crest of the inner petals minute. Gray's *Manual of the Botany of the Northern United States.* See also Chapman's *Flora of the Southern United States*, and Wood's *Class-Book of Botany.*

The natural order *Fumariaceæ*, to which the present subject belongs, is founded on the genus *Fumaria*, some of the representatives of which have been noted from the earliest times. One of them, known in the Old World as the Fumitory, is referred to by the old Roman author, Pliny, and it is recorded of it that it will give off an odor from the ground like smoke; and that, like wood-smoke, it will draw tears from the eyes. From these supposed smoky fumes, the plant has derived its name, *Fumaria*, and Fumitory from *Fumus Terra*, under which name it is indeed described by Otto Brunfels in a medical thesis published in 1532. The name under which it is described by Pliny is *Capnos*, which appears to have been derived by him from the Greeks. Few plants have had so many questions raised as to its proper name as this. Most plants of the order have but a single spur. This has two, and thus has originated the common name of Breeches Flower. The term, *Dicentra*, is expressive of these two spurs. By bad proof-reading, or some similar oversight, the name was rendered *Dieltrya* and *Diclytra*, and there are botanists who hold that what the author meant is of no great consequence in a name, and therefore adhere even to a misprint if it have priority; while others feel free to correct the error, and use the intended name. So in this instance, Dr. Gray, whose description we quote, cites De Candolle as the authority for the name, who described the plant as *Diclytra Cucullaria* in *Prodromus* in 1821,—while other authors give Bernhardi as the authority who used *Dicentra Cucullaria* in the *Linnæa* in 1833. Trouble came in nomenclature also from a difference of opinion as to whether the two spurs form a sufficient generic distinction. Early botanists, long before the time of Linnæus, followed Lobel in using the old classical word *Capnos* for the whole Fumitory family. Then those species with a round pericarp within a large inflated calyx were classed as *Cysticapnos*, and those in which "the nectary of the lower lip is as prominent as that of the upper," were known as *Capnorchis*. Our *Dicentra Cucullaria* was known as *Capnorchis Americana*. While these differences of opinion, as to what should constitute proper generic characters, and consequently what should form a stable name, exist, the same questions are raised, with as much difference of opinion, about the names that should be credited with authorship. Thus Professor Conway McMillan, in his "Seed-bearing Plants of Minnesota Valley", credits Goldie, who gave a list of the plants of Canada in the Edinburgh *Philosophical Journal*, with the name *Capnorchis Americana*,—while other authors credit Boerhave with it, who published an *Index Plantanum*, in 1720. The lesson shows that it is best for the general student to follow the names adopted by the authors of generally accepted works, as in the present case the *Manual* of Dr. Asa Gray is preferred.

The early history of our plant seems to be that it was sent to the Old World in the first instance by the Rev. John Banister, from Virginia, and it became quite well-known to cultivators in the early part of the century. Of our own collectors, Pursh refers to it as a *Corydalis*, and says "this singularly constructed flower grows on the sides of shady hills in rich vegetable mould among the rocks, and is known among the inhabitants as 'Breeches-flower,' or 'yellow-breeches,' and, as I consider that all those species with two spurs or nectaries might form, with propriety, a good genus, I have given it the name of *Perizomanthus*."

Digitized by Google

In its relationship, it comes close to *Dicentra Canadensis*, from which it differs in the roots, not creeping, but forming a sort of bulb composed of numerous granules. At least this bulb is usually referred to as a "root" in botanical descriptions, though really a bulb as properly as a lily or onion bulb, for it is com posed, as they are, of the thickened bases of the leaves. As seen in the illustration (fig. 2), these granules are at the base of the leaf-stalks which disarticulate and leave the starchy granules to form the bulb, which is surrounded at the base by leafy scales. The roots, properly so called, are fibrous and seem to endure only for one season. The granules are red, only when near the surface. If well covered by earth they blanch.

The structure of the flowers rivals that of orchids in their peculiarity. Botanists differ among themselves in their descriptions of the parts. Some consider the two small, ovate, processes, at the base (fig. 6), the calyx. Others regard these as bracts, and call the parts producing the spur-like nectaries the calyx. In the latter case, the two smaller ones at the apex of the flower would be the petals. The stamens seem to be arranged in two sets of three each; but it is probable that, if their early construction could be ascertained, they would be found, in the whole structure, to be built up on a binary plan.

There is yet much to be ascertained regarding the fertilization of these singular flowers. In the round-fruited forms of Fumitories, the anthers are just above the stigma; and, as the petals never separate, the flowers must be self-fertilized. In this species, however, which belongs to the long-capsuled section, the anthers are beneath the stigma (fig. 4), and it seems difficult to conceive how the fertilization is effected. It may be that most of the flowers fall unfertilized. The writer has never seen a mature seed vessel of this species, nor of its Asiatic relative, common in gardens, *Dicentra spectabilis*.

Cornutus, an early writer on Canadian plants, describes this as having "insipid" bulbous roots. Linnæus describes the *Fumaria bulbosa* of Europe as having roots "Amara," "Acris," etc,—and that of *Fumaria officinalis*, as "Amarissima." Possibly this is insipid merely by comparison. They do not seem to have had their qualities particularly noted in America. Of a related species in Japan, *Corydalis racemosa*, a Japanese author says: "A single leaf is enough to kill a man."

It flowers in Pennsylvania, in April and May, being among the earliest to cheer the wild-flower lover. Its range in the Eastern United States seems to be from high latitudes in Canada to North Carolina, and from there westwardly from Northern Minnesota to Arkansas. It appears again on the Northern Pacific coast, and will probably be found in northern latitudes, across the whole North American continent.

A good lesson in botanical nomenclature may be furnished by an error in the printing of the name on the plate, where it is *Dicentra cucullaria* instead of *Dicentra Cucullaria*. In the reconstruction of the system of botany by Linnæus, he indicated that where he had derived the specific names from proper names, he made use of a capital, otherwise the student would be puzzled to understand the derivation of the term employed. The specific name he adopted in his binomial system would be frequently the proper or generic name it had formerly borne. Hence his *Ranunculus Ficaria* was not so named by him because it had fig-like roots, which might be assumed if he had written it *ficaria*, but because *Ficaria* was the name of the genus to which this species of buttercup was anciently referred. Even in modern times, when plants' names are derived from aboriginal names, places of growth, or other sources that would be termed proper names, the use of the capital in the specific name expressed a full chapter in the history of the plant. Some modern authors have abandoned the use of all capitals in the use of specific names, apparently for the sake of uniformity in the manner of the spelling; but this practice is not adopted by the larger number of botanists. By writing *Dicentra Cucullaria*, the student is at once informed that the name is so constructed to indicate that *Cucullaria* was once its generic name. This explanation will serve in other cases.

EXPLANATION OF THE PLATE.—1. Plant from the Wissahickon Creek, Philadelphia, furnished by Dr. Hedemann. 2. The scaly basis of the leaves. 3. The outer sheathing scales. 4. A flower, divested of petals, showing the six stamens in two sets with the large, capilate stigma above the anthers. 5. Enlarged flower, showing the position of the two (inner) petals. 6. The bracts (or sepals), the figure 6 not being very distinct between the two spurs in the plate.

Digitized by Google

WILD FLOWERS AND NATURE.

MARCH.

Like some reformer, who with mien austere,
Neglected dress and loud insistent tones,
More rasping than the wrongs which she bemoans,
Walks through the land and wearies all who hear,
While yet we know the need of such reform;
So comes unlovely March, with wind and storm,
To break the spell of winter and set free
The prisoned brooks and crocus beds oppressed.
Severe of face, gaunt-armed, and wildly dressed,
She is not fair nor beautiful to see;
But merry April and sweet smiling May
Come not till March has first prepared the way.

—ELLA WHEELER WILCOX,
in *Ladies' Home Journal.*

THE NEST OF THE CHIMNEY SWALLOW.—I am pleased to notice Dr. Van Denburg's queries in the January MONTHLY, and on re-reading my recent note, I find that, in the attempt to be brief, I was a little too brief, and consequently a little more positive than I intended. What I should have written was this. "one who will observe the bird, and who will examine a nest, will, I doubt not, discover the material which forms the bulk of the structure to be the gum of the cherry and peach trees." I make this correction now, because I desire to record only to the extent of my knowledge and belief.

I have not seen the birds actually collect the gum referred to, but I have watched them closely enough, and long enough to be convinced that the material they use is something wholly extraneous. Whether the Chimney Swallow furnishes the substance which lines its nest, or whether it collects a foreign matter and makes use of it, may not be a matter of vital importance,—nor even a question of general interest,—but for many reasons I am glad the readers of MEEHANS' MONTHLY are prepared to discuss the subject.

I am sensible that the weight of recorded testimony is against the theory advanced by Prof. Meehan and supported by myself. Since the appearance of "The American Ornithology," nearly every one who has written upon the subject has either copied from it verbatim, or else appears to have been overwhelmingly influenced by the conclusions there expressed; and this is quite pardonable, for Wilson was a keen observer, and seems to have given the Chimney Swallow its full share of attention. Wilson has told us that the "twigs" are "fastened together with a strong adhesive glue or gum, which is secreted by two glands, one on each side of the bird's head, and mixes with the saliva." Dr. Brewer goes a little beyond this, and informs us that "when dry, this saliva hardens into a glue-like substance apparently firmer even than the twigs themselves." This practically is what Gentry has recorded in his "Life Histories of Birds," where he tells us "the twigs are fastened to each other by the saliva of the builder. This saliva after a slight exposure hardens into a glue-like material." Thomas Nuttall in his "Ornithology of the United States and Canada," radically differs from the authorities quoted by saying, "a copious quantity of adhesive gum or mucilage secreted by *the stomach of the curious architect,*" is the material which unites the work. This then is the recorded testimony. To a pair of Chimney Swallows which had their nest in the stack of a bake-house, and whose movements for several seasons I had the privilege of observing, I will confine my remarks. This bake-house stood upon a farm bordering upon the Perkiomen Valley in southeastern Pennsylvania,—a region noted for its ornithological treasures, and one which will long be remembered in connection with that eminent naturalist, John James Audubon. The chimney of this bake-house was so situated, that from the attic of the dwelling house adjoining, one could conveniently look down it,—and from this point I spent many an hour watching the birds, both in the building of their nest, and in the rearing of their young. Not once, but several times I observed their work; for as the presence of the birds is considered objectionable, the nests were pulled down when the young had disappeared. At the time I am writing of, I unfortunately did not possess an opera glass,

Digitized by Google

and I could not satisfy myself as to the exact method employed in building and finishing the nest. In the stack the birds were very awkward and clumsy, and appeared to be able to use their feet only to cling, and this they did in a way to hide their method of work from one in an elevated position. This much I know, however, the birds left the stack at frequent intervals for material, and returned with what they had collected, and what they made use of appeared to be dependent upon its collection. The conclusion that the composition of the bulk of the nest is from the gum of the cherry and of peach trees was arrived at by an examination of the nest itself. Upon this point, I never have had any doubt, and if I shall prove in error, I hope to be corrected. I have never dissected the bird, but I have examined it superficially, and have failed to find its mucilaginous reservoirs. Alexander Wilson is responsible for the statement that the bird "is never seen to alight but in hollow trees or chimneys," and generally speaking this is correct,—but I can hardly imagine an observing country boy who has not seen one endeavoring to settle upon a fence. Both Wilson and Nuttall record the Chimney Swallow building in hollow trees; and our own townsman, Prof. Gentry, gives one instance of a nest on a board in a winter log house, and another one against the roof of an out-building; so that the species is not entirely iron-clad in its habits. I hope the discussion of this subject may be continued until the question is determined, when the result I feel sure will be against the authorities,—and in favor of Prof. Meehan.

Philadelphia. EDWIN C. JELLETT.

WILD RICE.—Few know more of the reed of our river mud-flats than that it furnishes the food on which fattens for the epicure the reed-bird of autumn dinner tables—the bobolink of other seasons. But as wild rice—*Zizania aquatica* of science—it has played no mean part in the service of man. It was the staple food of the Indians that formerly inhabited Northern Wisconsin and Minnesota, where the plant abounds on the margin of lakes. Dr. Elliott Coues says that it is still the chief recourse of the Objibway Indians on the reservations of Minnesota. They not only gather it for their own use, but for the purpose of trade. A common name is Indian Rice, and the lakes along which the plants abound are known as rice lakes. Whole Indian villages will be tenantless in autumn, the inhabitants having gone "ricing," as the harvesting is termed. The Indians push their canoes into masses of rice, bend the heads of rice over a crotched stick, and thrash the grain into the bottom of the boat.—*Independent.*

NOTE ON FERNS, LYGODIUM PALMATUM AND ASPLENIUM MARGINALE.—Mrs. F. L. K., Danville, Vt., notes in regard to some recent fern illustrations:

"*Aspidium marginale*, in this region, has bright brown spores. I have gathered it at all stages of growth, and have never found any that approached black, though some have darker shades of brown than others. The day that the October, 1895, number came in, with its beautiful illustration of *Lygodium palmatum*, I also received a fine specimen from Somers, Ct. Your history of the fern had an added interest to me, because I am almost sure I have in a lot of ferns from Japan, unnamed, a *Lygodium Japonicum*. It is a sterile frond, so that identification cannot be complete, but I hardly see how it can be anything else.

What a feast of knowledge is in store for me these coming months if I live. My botanical correspondents are the wiser for my reading the magazine."

TWIN EARS OF CORN.—"I think I have somewhere read that a single stalk of corn cannot produce two ears, one of which has 8 rows and the other 12. I have in my possession two ears taken from one stalk this fall, one of which has 12 rows and the other 8, with 3 short rows tucked in at the butt, about one inch long.

"Perhaps you may think there is some mistake about this; but I know there can be none, for I still keep the ears and they will show for themselves.

My own brother husked them and saved them for me, knowing that I was always looking for curiosities." TIMOTHY WHEELER.

Moscow, Vt.

Twin ears of corn—united in some portion Siamese fashion—are not uncommon. We do not know that two ears wholly separated, as Mr. W. describes, have been before noted. It will interest morphologists to inquire why one should be 12-rowed and the other only 8.

Digitized by Google

FANCIFUL RESEMBLANCES IN PLANTS.—Noting your paragraph on the resemblance of a ripe seed vessel of the *Jeffersonia*, when inverted, to a Turkish pipe, I send you a photo of a white oak, which I took while at Wildwood, in southern New Jersey. My attention was directed to it as presenting the appearance of the head and horns of a deer, from some particular points of view. If you tilt the picture a little upwards on the left hand side, the resemblance is suggestive. By the way, how is this peculiar habit of growth to be accounted for? M.

Haddonfield, N. J.

A DEER'S-HEAD GROWTH OF A WHITE OAK.

These peculiar growths can often be accounted for when an examination is made on the spot, and with a fair knowledge of the usual phenomena of the growth. But an explanation could not be very well offered from a study of the picture alone.

ANNUAL WOOD CIRCLES IN TREES.—A Memphis, Tenn., correspondent says:

"There is an argument as to the age of a Cotton-wood Tree grown on the made lands of the banks of the Mississippi River. They want to show that the tree is 50 or more years old. They had the oldest tree cross-cut and brought into court. I was called on, and counted 36 rings; but contend that *a ring is a growth*, and many trees make two and even three growths a year, showing a ring each growth. A Yellow Pine I had cut down here, that *I knew to be 25 years old*, had 75 rings, showing three growths a year. Now what do you say?

"Again, some of those interested (*Hooseers*) say each ring, as they know it, counts a year. Again, they say *when the sap goes down* it forms a ring, and that only once a year.

"Now I contend, and from my learning back to 1835, that the sap going up forms the growth,—the wood and the ring; *but the sap does not go down*. There is nothing to go down. It is utilized,—made into wood until another start to make anew. And so one, two and often three a year. *Now what do you say?* Do you remember reading the very celebrated

Digitized by Google

controversy on this, which ended as I say, between R. F. and Humphries, in the *Gardeners' Chronicle*, in 1845? If you can sustain me, make it so I can show it. I am sure I am right."

Sap does not ascend and descend in the manner it was supposed fifty years ago to do. All of us have learned much since then, and have to learn much more, for there are still some obscure points. We all read too much and observe too little. It is the easiest thing in the world to test the question raised by our correspondent by measuring a tree daily through the growing season. If there were two or three distinct growths there would be two or three halts in the progress of the figures. The senior Conductor kept a record in this way on some Carolina Poplars. There was not the slightest variation in the figures until a few weeks past midsummer. The whole new circle of wood was completed in one effort, not extending over two weeks. The record is published in the Proceedings of the Academy of Natural Sciences of Philadelphia, in one of the volumes in the early sixties. Last year, one of the clerks, in the office of the Meehan Nurseries, kept a record on a large Silver Maple, near the office; commencing June 12th and ending November 24th. The girth was 55 inches at the commencement. There was not a hair's-breadth of increase till the 18th of June, when a sudden increase of one-sixteenth was found. It then continued at the regular rate of about one-sixteenth of an inch increase in girth every five days until August 13th, when 56¼ was reached. This was the end of the increase in girth for the season. The senior Conductor has often counted the rings of old trees, the ages of which were known, and the correspondence was close.

In some cases there does seem to be fine lines within the larger ones, and without some caution these may be mistaken for the rings winding up the annual growth.

It may be asked, here, how is the line formed, by which we trace the annual growth? The old notion was that wood was formed out of elaborated sap. We now know that only that which has life can give life. "All things from an egg" is the form in which this is expressed. No elaborated sap could originate a living cell. New wood cells are formed from the older cells, and the elaborated sap supplies the food. On the 18th of June, in the experiment above cited, the mother cells holding over from last year brought forth a new brood of cells. These younger ones again brought forth others, and so they kept on continuously—the older giving birth to younger—till the 13th of August. By this time the leaves ceased to prepare food. Without food, the cell growth ceased for the season.

When food becomes limited, the cells are smaller. When they renew growth with abundant food around them, they are large. The smallness of the cells make a darkish line between the broader cells. This is all that constitutes the line. A sudden deficiency in the food supply during active growth will lessen the size of the cells, and give the appearance of an "annual line;" but the renewed growth shows a gradual increase in size, and not the abrupt connection between large and small which marks the whole growth of one season and the beginning of the new. As to the ascent of the sap, there is a continuous flow of sap from the roots to the topmost twig to supply evaporation and transpiration. There is no evidence that sap descends; but something descends, for the food which nourishes the germinating cells contains elements which can only be procured from the atmosphere through the medium of the leaves of the tree. Just how all this is brought about has never been demonstrated to the satisfaction of the writer of this paragraph, but it is clearly the case, nevertheless.

ASPIDIUM MARGINALE.—In the article upon *Aspidium marginale*, in the December number of the MONTHLY, there is an error which should be corrected. At the bottom of the first column on page 222, the writer, in enumerating the various altitudes at which the plant grows, mentioned Garrett Co., New Jersey, 2,700 feet. There is no county by that name in New Jersey, neither is there an elevation that great in the state; the highest ground in New Jersey is at High Point, on the Kittatinny range of mountains, and is slightly less than 2,000 feet. The only Garrett County in the United States is in the northwestern part of Maryland, and as it is in a mountainous section of the state, it is presumably the locality meant.

CHARLES H. LAWALL.

Philadelphia.

Digitized by Google

NEST OF THE CHIMNEY SWIFT.—While I am not prepared to say that the chimney swift does not use vegetable gum in the construction of its nest, I can yet certify that in ten years observations upon this bird in a locality where they are very plentiful, I have never seen one instance in which the bird was seen in the act of gathering cherry gum. The swift is a bird of the higher air, and unlike the other swallows, does not alight on houses or on the ground. In fact, to see a chimney swift on the ground or the trunk of a tree would be remarkable enough to "make a note of." Now this cherry and peach gum usually is found only on the trunks and larger limbs, and I venture to assert that no one ever saw a swift in such a situation.

In regard to breaking off the twigs to form its nest, I can speak with greater certainty, for I have repeatedly seen them do it. They select some dead tree and dashing through it snap off twigs an inch or more long. There certainly can be no mistake about this, anyone can observe the performance in the breeding season.

In this section, the swift very frequently nests in barns and sheds, and sticks its nest to the flat surface of a board usually in the gable. I have had the opportunity to watch the construction of such nests from beginning to completion, and found that it takes much longer than it does many other birds' nests. A noticeable feature of the work was the fact that the birds would cling to the wall near the nest for an hour or more, *and then go to work on the nest!* During this time they may have been dissolving the cherry gum, but to me it seems much more likely that they were gathering the saliva with which to advance the building. One who has examined the swift's nest closely will be struck with the multitudes of fine slender threads of the glue, which it seems would be hard to produce from cherry gum. A chemist of my acquaintance recently told me that it would require rather complicated experiments to distinguish between vegetable and animal gums of this kind.

WILLARD N. CLUTE.

Binghamton, N. Y.

HEDGE OF NORWAY SPRUCE AT WYNCOTE, PA.—SEE PAGE 60.

The whole subject of swallows' nests is becoming very interesting, and whatever conclusions are reached, MEEHANS' MONTHLY must have the credit of bringing out more exact knowledge about the bird than has been heretofore recorded.

If we try to divest ourselves of all prejudice, and look at the facts judicially, the matter stands thus: There are some who have seen lumps of undissolved gum, ranging in size between a pea and a bean. They doubt whether

Digitized by Google

such a lump of gum could be so formed by the saliva of a bird. They believe it to be vegetable gum, and to belong to some member of the plum or cherry tribe. They further suggest that different authors have located the gum-bearing glands in different parts of the bird's body, thus suggesting the thought that they are describing imaginary organs.

The other side contends that circumstances indicate that the gum is really furnished from the bird, and that there are difficulties, from the habits of the bird, in the way of conceding the vegetable origin of the gum. One, not yet taken up by any of our correspondents, is the difficulty the bird would often find in detaching the gum. Gum is very abundant in the Red Cherry of New Hampshire Hills—*Prunus Pennsylvanica*. The senior Conductor remembers seeing a mass, as large as a goose egg, on a comparatively small branch, which appeared as if it might come away easily, but it would be a tough job. A bird could not accomplish it. The whole subject requires direct and careful observation. Surmises will not settle the interesting questions.

APLECTRUM HYEMALE.—May not the "subterranean vegetable growth" described in the January number be that of *Aplectrum hyemale*? In mid-summer, it shows no vestige of foliage. The root is a thick, globular bulb averaging an inch in diameter, and a new one is formed each year; but, as the old corm lasts a year or two before it shrivels (though never again destined to produce foliage), there are usually two and sometimes even three or four of these corms horizontally connected, as described, by the fibrous cord.

In autumn, each new corm sends forth a single ovate leaf, several inches long, and conspicuously marked with longitudinal veins of glistening white; and despite its habitual shriveled appearance, it is really quite a pretty plant. The leaf remains green through the winter, and in May a spike of dingy flowers, resembling those of the Coral Root save that they are spurless, appears. After the seed ripens, the leaves disappear; and no outward sign of its presence is visible until the renewal of leaf growth in the following autumn.

The corms are filled with a glutinous matter utilized by our grandmothers in mending broken crockery; this quality has given to the plant the name Putty-root. While the fact that the corms most frequently appear in pairs has gained for it, one of our strangest orchids, the appellation Adam-and-Eve.

BESSIE L. PUTNAM.

The communication in the January issue seemed to refer to two distinct productions. One lying flat just beneath the surface, covering a space two feet by three, and not averaging two inches thick. On a venture this was referred to *Ipomœa pandurata*.

The "two round bulbs" referred to may be the Putty-root as suggested by Miss Putnam. A large number of terrestrial orchids have twin roots, such as described. Indeed the tribal name orchid is derived from a Greek term expressive of this didymous character.

HABITS OF THE CHIMNEY SWALLOW.—Anent the chimney swallow, I accept your invitation to "come forward" to give my observation on the subject. I have frequently seen these birds "breaking twigs;" not, however, in the way you imagine or suggest, by taking a twig on the fly at full speed at the danger, as you say, of breaking their necks. The tree selected is always a dead one with dry, brittle twigs. They hover on the wing for a few moments before the end of a twig, snipping off a small piece with ease. Only last spring, in New Hampshire, did I see this done and so near me (just over head on a dead apple tree) that I heard the snap of the small piece of twig. I supposed this habit was well known and frequently observed.

About the "Vegetable Gum," I know nothing as I have never examined one of their nests.

In your answer to Mr. Van Denburg, in the last MONTHLY you say: "If the bird in question is not a Barn Swallow." Is not this rather hard on your correspondent? No one who knows birds and takes the pains to write about them would ever confound a barn swallow with a chimney ditto. STEPHEN PARRISH.

Philadelphia.

On reflection, it would seem that, without intending it, the remark, referred to by Mr. Parrish, may seem rather hard on Mr. Van Denburg. As Mr. V. was writing of what he had seen and not what he had read about, the remark, if it could bear the construction put upon it by Mr. Parrish, would certainly be gratuitous.

Digitized by Google

GENERAL GARDENING.

A BED OF ROSES.

Fresh from the bath Zenobia lies,
A languid beauty in her eyes,
Which flash not now with genius fire,
But softest love alone inspire.
Around her scattered amaranths lie,
While silken cushions heaped on high
Support her form as she reposes
Upon a divan stuffed with roses.

—MARY BAYARD CLARKE.

SEEDS OF THE MOUND BUILDERS.—Referring to the improbable story of the mound builders' six hundred-years-old-corn, a Chicago correspondent says:

"I have always said that the seed obtained of our seedmen were too fresh. Why don't they mine for old seed, as they do for silver and gold. They might strike some mound builders' granary once in a while. Mr. Graham can now distribute a new (old) variety and urge its use in making a new style of Graham bread."

FOREST LAWS. — As a general rule, any measure that will result in a new batch of officials, and give the professional politician a good grist of appointments, finds favor with legislators. Forestry laws always meet with favor from this class wholly aside from any merit there may be in the laws themselves. Almost all legislatures have forestry laws before them at every session, some of which pass, —but unless there is some appointments to be made, they are generally dead letters. Over a quarter of a century ago, the Legislature of Pennsylvania passed a law for the protection of forests from fire, but no one ever heard of a single effort under it. It is as follows:—"The Act of June 2, 1870 (P. L. 1356), makes it the duty of the County Commissioners of the several counties to appoint persons under oath who shall be required to ferret out and bring to punishment all persons who wilfully or otherwise cause the burning of timber lands, and to take measures to have such fires extinguished where it can be done, the expense thereof to be paid out of the County Treasury."

POISONOUS HONEY.—Mr. A. Newlin Williams, of Solebury, Pa., writes:—"Not long ago we were discussing bees and honey at the Solebury Farmers' Club, (Bucks County.) One member said he thought bees would never gather honey from poisoned flowers, but I have had an incident brought to my notice which would seem to prove the contrary. On a visit to Long Island, last summer, I recognized what quantities of stagger bush (*Andromeda Mariana*) grew on the plains. They call it 'kill calf' up there. The reason for the name may be easily guessed. Besides being a 'calf-bane' it is also, indirectly, a 'man-bane' through the agency of the bees, for apiaries have now been neglected many years for the reason that the honey is poisonous. There can be little doubt that the racemes of the little white bells hold nectar in their cups which is grateful to the bees, but which is baneful when set between human lips."

Does this statement amount to proof?

The writer has always had doubts about all poisonous-honey stories, from that recounted by Xenophon, to the "kill-calf" experience. Bees are affected by the same poisons that operate on men and other animals, and that which would poison a man would surely kill a bee. It is incredible that bees would collect and store that which would kill themselves. The race of nectar-loving creatures would soon come to an end if they fed on poisonous secretions.

But supposing there were some slight poisonous elements in some samples of honey, it would take a larger quantity of honey than a human being usually indulges in to make a man die. The verdict should be suspended yet awhile.

That people, even the army of Xerxes, should get sick after eating honey may readily be believed. They are often sick after eating mince pie, or after eating almost anything,—and many have been taken sick after eating nothing at all. That too much care in such investigations cannot be exercised is evident.

Digitized by Google

A HEDGE OF NORWAY SPRUCE.—Some have an idea that a plant that naturally grows to a large tree is not suitable for hedges. This would be correct if no art is employed in the management. But a plant which has its annual growth shortened or trimmed before it is mature never gets beyond our desire. Indeed, a plant from the tree class will make a more durable hedge, and be a good hedge in a shorter time than if a plant from the class of shrubs is selected. Among deciduous trees, the value of the honey locust and osage orange for hedging is well-known. The hemlock spruce and arbor vitæ are also in much request among evergreen trees. The Norway spruce is equally as good, though not so often seen. The illustration on page 47 shows one, from a recent photograph, growing near Wyncote in Montgomery County, not far from Philadelphia. As a proof how long a well-cared-for hedge of Norway spruce will last, it may be said that it was planted forty years ago, under the direction of Mr. William Saunders, now of the Experiment gardens at Washington,—and one of the three commissioners to whom so much praise is due for the admirable street planting at the Nation's Capital.

NELUMBIUM LUTEUM.—In a recent issue of MEEHANS' MONTHLY you give a very interesting account of the reproduction of *Nelumbium luteum*. There is a lake (Grass Lake) in the western part of our county, where a very small bed of them was known in the early days of white settlement. I remember calling your and the late lamented Dr. Warder's attention to them when on one of your visits about 20 years ago. At that time the bed was very small, possibly not over 25 blooming plants in a season, and known to very few. They were reputed to have been planted by the Indians, who were fond of their tubers. The lake is thickly grown up with wild rice, which was collected in large quantities, and possibly the *Nelumbium* also, by the Indians. For the last 20 years the lake has been a favorite resort for hunters and trappers, as there were thousands of muskrats there. They are now very rare; but every year the *Nelumbium* "bed" has spread, until now there are over a hundred acres of them. I believe the muskrats kept them from spreading more than the Indians did. I have fished for the tubers with a long-handled rake for hours, but with indifferent success, getting very few tubers and those very small ones. I have succeeded in germinating only one seed in thousands tried. Have sown hundreds in other parts of the lake where conditions appeared exactly like the parent bed, but none grew. THOMAS H. DOUGLAS.

Waukegan, Ill.

Between 1850 and 1853, when the writer of this paragraph was experimenting with the great Victoria Water Lily, which he subsequently brought to flower for the first time in America, the seed all failed to grow until he bethought to file the outer coating of the seed clear through to the inner flesh or cotyledon. After this they sprouted in a few weeks with the greatest ease. He successfully practised this later with the Egyptian Lotus, *Nelumbium speciosum*.

RELATION BETWEEN LEAVES AND FLOWERS.—Miss Bessie L. Putnam notes:

"Your statement in November MONTHLY, regarding spring flowers in fall, recalls the fact that last summer a hail-storm occurred in this neighborhood, so severe in *streaks* that it in some instances denuded apple trees of their foliage; these trees blossomed again a few weeks later. The practice of picking the foliage from the lilac on the first of August, to secure autumn flowers, is not uncommon, and is, so far as I know, successful."

These notes are useful in explaining that with an early loss of foliage plants will flower again. Flowering in autumn by plants that normally blossom in spring is usually attributed by superficial observers to a mild season, when really the explanation may be the reverse. A season favoring a premature loss of foliage, or accidents such as fungus attacks destroying or injuring leaves, are among frequent primary causes. Crows'-nest branches, or "witches' brooms," as they are popularly called, on various trees never bloom, simply because the fungus attacking the tree operates in spring. The shoots which would make flower buds are destroyed, and the secondary branches following the destruction of the young tips, and which push out from all the axillary buds that would have been flower buds, have not time to form flower buds before the growing season closes. These "brooms" are common on the Nettle Tree.

Digitized by Google

RETINISPORA SQUARROSA.—One of the most striking of the comparatively modern introductions from Japan is the greyish-green evergreen known in nursery catalogues as *Retinispora squarrosa*. This has enabled a photograph of it to present a peculiar light appearance in contrast with the darker Norway Spruces which are growing around it. This peculiar tint of green is very acceptable to the landscape gardener, who is generally on the alert to take every advantage of light and shade to produce pleasing effects from the arrangement of plants.

RETINISPORA SQUARROSA.

Siebold and Zûccarini, who wrote a Flora of Japan, and knew of this plant only from Japanese gardens, supposed it to be a distinct species, and named it *Retinispora squarrosa*. But it is now known to be merely a form of *R. pisifera*. All seedlings of this species have this peculiar form, but they lose it and assume a flattened, fan-shaped appearance in growth, similar to the arbor-vitæ, as they grow older. There is no definite rule when they will lose this infantile form, though it does not last in general more than two or three years. This particular one retains the juvenescent form for many years. In the Meehan Nurseries, there is a specimen which after about 15 years developed into the normal *Retinispora pisifera*. Modern monographers do not regard *Retinispora* to be a genus sufficiently distinct to warrant a separation from *Cupressus*. They call all Retinisporas Cupressuses now. But the name has become so universal throughout horticultural literature that it cannot well be changed without great confusion.

THE COW PEA.—In no Encyclopedia or other great work at command do we find any information, of any account, as to the history of the Cow Pea, which is such an important element in the agriculture and horticulture of the South. Our good friend, Mr. P. J. Berckmans, of Augusta, Georgia, has kindly furnished the needed answer to our inquiry, taken from an address he made before the Georgia Agricultural Society, in 1877:

"The introduction of the Cow Pea in America is supposed to be coeval with the landing in Florida of the early discoverers of that country, and whose vessels contained, beyond doubt, this vegetable among their stores. From this source the Indians obtained the seed,

Digitized by Google

and thus we may account for the name of "Indian Pea," sometimes given to this vegetable. Subsequently, numerous sub-varieties were originated, until there are to-day upward of thirty distinct kinds in cultivation in the Southern States.

The origin of the Cow Pea has, beyond question, been traced to China, whence it was first introduced in the South of Europe. Its subtropical origin had confined its cultivation to a few sections of Spain, Italy, and the South of France; and thus its area of successful cultivation belongs properly to warm climates.

In a few districts of Southern France, three varieties are cultivated.

First.—*Dolichos unguiculatus*, or Black-eyed Pea, which is the parent of our numerous sub-varieties of field varieties having long running vines.

Second.—*Dolichos Soja*, or Bush Speckled Pea, from which our Speckled, Bush and China Peas have descended.

Third.—*Dolichos sesquipedalis*, or our garden variety, known as Yard Long Beans, whose peculiarity consists in its very long pods, which are used as snap beans.

The Egyptians cultivate extensively the *Dolihcos Lablab*, which we know here under the name of Hyacinth Bean, and which is so often seen covering the porches of our country houses. It is here used solely for ornamental purposes, but may be found useful in agricultural economy, if properly experimented with.

The two types first mentioned are then the sources from which our numerous varieties have been produced, and the intermixing of these has given varieties with greater or lesser extent of vines, and careful selection is needed when planting a crop for a specific purpose.

The varieties preferred for forage are the plain or semi-colored, which, being of spreading habit, are best adapted for that purpose. Among them we find the "Red," "Clay," "Black," of the plain colored kind; and the "Whippoorwill," of the semi-colored. The White Field," "Lady Pea," etc., are very desirable varieties, but they require better soil than the former, and are not so well adapted for general field crops. The "Red Ripper," or "Tory," is esteemed in certain localities for its easy keeping qualities and its faculty of the seed remaining sound in the ground during winter.

The varieties most in demand for market and table use consist mainly of the "Speckled" or "Bush," or "China Peas." Their habit of growth, as indicated by one of their many names, is bushy, and thus are unfit and undesirable as forage crops. As stated before, hybridizing of the two types among themselves has given rise to many varieties, which partake of both parents, as to habit of growth or color of the pea; thus there are sometimes found speckled peas with long vines and spreading growth; but these peculiarities of growth can only be found out when growing; hence, when purchasing peas for a forage crop, it is prudent to confine our selections to the plain or semi-colored kinds.

The "Lady Pea" is the best flavored variety of the genus, and is often used for culinary purposes, either in a green stage of growth as snaps, or when dried for soups, or baked as is the garden white bean."

It may be noted that in the *Index Kewensis*, which we suppose, like Webster or Worcester in general language, we shall have to follow, *Vigna Catjang* is the name adopted in the place of *Dolichos urguiculatus*,—Dolichos Soga, is *Glycine Soga*,—and *Dolichos sesquipedalis* is retained. Catjang and Soga are the Asiatic vernacular names which have been retained by botanists.

BIDENS BECKII.—A correspondent from New York City sends a specimen, of a plant growing in a parlor aquarium, to ask for its "common name." A friend procured the Latin name from a botanist as *Bidens becki*, but could not get at the meaning for his visitors. It appears to be correctly identified, though we did not know that the plant was employed in aquarium work There is no common name so far as known, as the plant has not been in common use. The "botanist" was probably misled by the practice of some moderns of dropping the capital from a man's name. There is no Latin word *beck*, and it is no wonder the student was puzzled over the meaning. It simply means "the *Bidens* named in honor of Mr. Beck." Older botanists would suppose the owner spelled his name with a capital—Beck. Just why some botanists desire to spell these names in this way, we never knew. The "botanist" would have seen at once that "beck" was a proper name if it had been properly spelled.

Digitized by Google

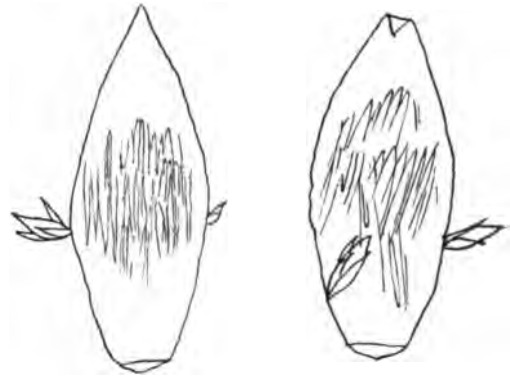
CULTIVATING NATIVE AMERICAN PLANTS.—Parke, Davis & Co., the well-known dealers in drugs of Detroit, believe that the plants used in the drug business are still so abundant, in a wild state, that there is no chance for any one of them to be cultivated to a profit for some time to come.

DISEASES FROM ROOT-FUNGUS.—The attention which MEEHANS' MONTHLY, and in former times the *Gardeners' Monthly*, called to the work of *Agaricus melleus* on the roots of peach, pines, spruces and other things, resulting in a weakened vital power as shown by a yellowing of the foliage (in the peach—"the yellows") followed by a growth of twigs of such low vitality that the twigs would die under slight winter frosts, is resulting in good work.

Baron von Mueller states that another fungus, *Tremetes radiciperda*, acts in a similar way in Australia. He further states that the Scotch Fir and the larch suffer in Scotland from *Agaricus melleus* just as the peach and other things do here. He has recently had a letter from Prof. Frank, of Berlin, saying that owing to the attacks of *Agaricus melleus* on the larch plantations they have been looking for some tree the roots of which are not in favor with this serious depredator, and it is believed the Yellow Locust, *Robinia pseudacacia*, will be a success in this respect. In the observations of the senior Conductor of this magazine the peach, apple, White Pine, Bhotan Pine and the Norway Spruce are the only species seen to suffer from this root-fungus. It would be worth while to have more extended observations. The fungus seems to get its first start from rotten wood, spreading subsequently to healthy roots. The Norway Spruce takes the fungus very easily. It was used by the Conductor in his earlier experiments. A few shovelfuls of earth with the roots of a peach afflicted with the "yellows" placed in the ground about a Norway Spruce would be nearly sure to give the "yellows" to the Norway Spruce the next season following. The peculiar ferment, which permeates the tree so attacked, seems to follow the individuals raised from it either by cuttings, seeds or grafts.

This Agaric is probably the worst pest the cultivator has to contend with. To avoid half-rotten wood in the soil, is the best safeguard.

BULBLETS FROM LILY SCALES.—The botanist usually explains the formation of new bulbs in the lily family by saying that they are formed in the axils of the leaf-stalks. That this is not always true is proved by some bulbs of *Lilium candidum* which I set out last fall.



These had a great many small bulblets springing from near the edge of the bulb-scales on the inner surface of the scales. They were an inch or more from the axils. Some of the bulblets showed considerable growth, having two or more scales of their own. I enclose drawings of the bulb and scales.

WILLARD N. CLUTE.

Binghamton, N. Y.

This interesting note shows that when a leaf is so modified as to become a bud scale it still retains a power possessed by true leaves, in exceptional cases, of forming buds outside of the usual axillary position. Some begonia leaves, and the leaves of the *Bryophyllum* or "live for ever" of Florida, will make buds from the ends of the veins, just as these lily scales have done.

A DOUBLE MAYWEED.—Miss Bessie L. Putnam says:

"I had two plants of double mayweed this year—the finest one was self-sown from last year's experiments (you perhaps recall my sending you some of those ligulate heads a year ago for seed). I have since sent blossoms to several botanists, none of whom had ever seen

Digitized by Google

it before. I hope I may succeed in making the variety permanent."

A double composite is simply a flower in which the disk floret has strap shaped, instead of tubular, florets. A large section of the order are therefore naturally double. The dandelion is a familiar instance. A remarkable fact, and one of which no use has been made by those who write of evolution, is, that while there is a constant tendency of the species with tubular florets to produce strap-shaped ones, there is absolutely no tendency in the strap-shaped ones to assume the tubular disk form. No one ever heard of a dandelion becoming "single"; while the daisy, dahlia, chrysanthemum, and others well known, often become "double."

SILICATES AS MANURE.—A Chicago correspondent says :

"Some twenty or more years ago, some firm in or near Baltimore sent out a fertilizer composed in whole or part of a diatomaceous earth, the fossil microscopic diatoms being composed entirely of silica. This earth came from some deposit in Maryland. Do you know if it is still sold, and where it can be obtained? Scientists say that these small fossil skeletons, of many shapes,—stars, rings, discs, etc.,—form to a great extent the outer coating of wheat, rye, etc.; that experiments have been made, where this, or rather a diatomaceous earth, had been used,—that the macerated straw, under a microscope, showed the diatoms unchanged in form. A friend of mine, who is experimenting largely in chemical manure, chiefly in solution in growing Chrysanthemums, intends trying some form of silica, and I suggested this earth. If the Chrysanthemum will take the silica and use it to build up its stem, the question of a stiff stem may be solved. I understand that Fuller's earth contains a large percentage of silica. Have you ever known this earth used in the cultivation of plants? Can you give me any information as to the best form to convey silica to a plant?"

Several years ago it was pretty well demonstrated that mineral matters, that had once entered into the structure of plants or animals, were more readily taken up by plants than when presented to them in an original condition. Thus, for instance, potash supplied by wood ashes was much more valuable as a manure than potash from decomposed feldspar. This should hold good in the present case. It is doubtful, however, whether the diatoms could retain their forms after their substance was assimilated by the plant. Perhaps others may be able to give more specific answers.

NEW OR RARE PLANTS.

FUNKIA UNDULATA FOLIA VARIEGATA.—This is a highly recommendable little plant for forcing in winter. Planted in boxes and placed under benches, with a temperature of 50 to 60°, it will soon be a surprise to every observer. The plant can be forced right away, without being rooted again.

The leaves—and they are the only valuable part of the plant when forced—are beautiful, having white, green and yellowish stripes; they are daintily curled and do not wither readily,—a very important factor in the arrangement of flowers. *Funkias* are perennials, —often named as *Hemerocallis* in mistake.

ALB. MILLARD.

SPIRÆA ANTHONY WATERER.—Among the new shrubs to be introduced here this spring is the *Spiræa* "*Anthony Waterer*,"—a sport from the *Spiræa Bumalda*, raised by Anthony Waterer, Knap Hill, England. It has the same character of growth as the *Bumalda*, but it is much freer in blooming, the flower heads are a great deal larger, and they are of a brighter pink color than the parent. The Conductors saw some of the original plants at Mr. Waterer's nursery, the past summer, and were much struck with the beauty of the plant. Its low-growing compact habit makes it useful for planting in small shrubbery beds.

PSEUDOPHŒNIX SARGENTI.—Up to recent times, the *Washingtonia filifera* was regarded as the rarest member of the palm family indigenous to the Union. But the more recent discovery, *Pseudophœnix Sargenti*, is now conceded to be the rarest palm of the United States, if not in the world, occurring as it does only in one or two of the more southern "keys" of Florida; discovered by Prof. Sargent a few years ago, but up to now hardly known in collections, seeds being very hard to obtain. It has recently been distributed by the South California Acclimatizing Association.

Digitized by Google

CARYOPTERIS MASTACANTHUS.—In the February issue of MEEHANS' MONTHLY for 1895, there was an illustration of a new shrub from Mandchuria, *Caryopteris Mastacanthus*.

It has been on the grounds of the Meehan Nurseries for several years past, and has created a very favorable impression. In spite of the drouth during the past summer, it made a vigorous growth and was particularly beautiful when in flower during August and September.

It is reported to be quite hardy in the New England States and is not injured at all at Philadelphia. It is especially valuable on account of its late blooming qualities,—the flowers expanding at a season when few other shrubs are in bloom.

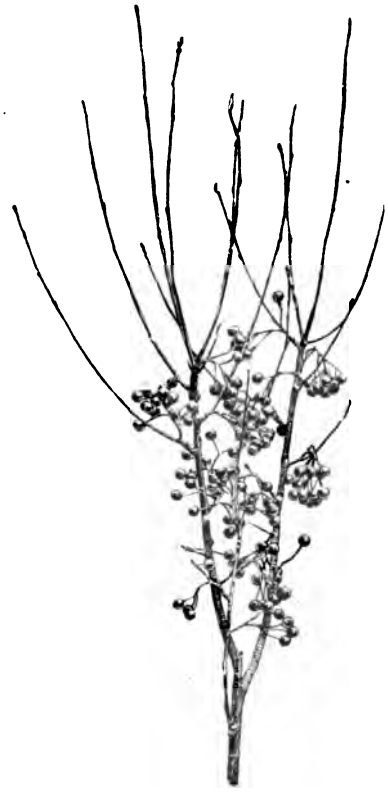
CARNATIONS.—Some promising new varieties of carnations will be disseminated this spring, and a few of them that have been brought to the notice of the conductors would indicate that the "ideal carnation" is near at hand. A long and stiff stem, large, full and well-shaped flower and a calyx that will not burst, are the main points which go to make up perfection in this flower.

Jubilee is a dazzling scarlet, it has a large and full flower and a strong stem. The foliage and growth resemble Daybreak. It will be sent out this spring by E. G. Hill & Co.

Della Fox is another new variety raised by Myers and Samtman, Philadelphia,—it is a cross between Daybreak and Grace Wilder. It has all the characteristics of Daybreak, both in growth and in flower, but the color is deeper and it is more delicate in appearance.

Bridesmaid is a promising sort disseminated last year by the Cottage Garden Greenhouses. It is also of the Daybreak character. The flower is a beautiful pale pink in the centre, gradually fading to a cream white on the outer edges. This firm also introduced a dark crimson sort last year which they named Meteor. It has a strong growth and a large full flower. The color is that of the well-known variety, Annie Webb.

PYRUS ARBUTIFOLIA.—It is only during the past few years that the wonderful wealth of American trees and shrubs has been appreciated in ornamental gardening. It is not yet appreciated to its full extent; indeed, it is questionable whether there are not quite as many good things standing in the background as have achieved prominent notice. One of these is the shrub now introduced to the attention of the readers of MEEHANS' MONTHLY, *Pyrus arbutifolia*,—or, as it is commonly known where it abounds, Chokeberry. It belongs, as its name *Pyrus* implies, to the apple family, and makes a rather dense bush of about five feet high. The leaves are some-



PYRUS ARBUTIFOLIA.
(Berries red, reduced three-fourths.)

what like the famous Strawberry Tree of English gardens, or *Arbutus Unedo*, and which tree is generally in mind when a botanist names any thing "arbutifolia." It has corymbs of white flowers in spring, which are more like minute pear blossoms than apple, though the bright red fruits in autumn have more of an apple character than of a pear. The leaves turn of a beautiful crimson in the fall of the year. The specimen illustrated shows its appearance at the end of November, and is reduced three-fourths.

Digitized by Google

FRUITS AND VEGETABLES.

PEACH GROWING IN NORTH CAROLINA.—Professor Heiges reports that Tryon, North Carolina, is a great centre for profitable peach growing, and that their principal varieties are the Crawfords, Elberta, Oldmixon, St. John, Amsden, River's, Heath Cling and Stump.

THE SPLENDOR PRUNE.—The new fruits, raised by the successful efforts at improvement made by Mr. Luther Burbank on the Pacific Slope, are already getting into circulation. Stark Brothers are offering the Splendor Prune, which is more than double the size of the D'Agen, which has hitherto been the most popular of prunes.

IMMEDIATE CHANGES BY THE ACTION OF POLLEN.—It seems very hard to settle this question. A correspondent asserts that he has seen a pear tree intertwining its branches with an apple. One branch of the pear had a round fruit like an apple. He is sure the pollen of the apple influenced this form. It is remarkable that those writers who make the strongest assertions, that pollen has this immediate influence, have never made any actual experiments,—while those who have tested the matter directly never had any results. The old English author, Bradley, who wrote in 1724 and asserts most positively that such immediate results do occur, had no other evidence than that he had found various changes in form and character in the same orchard. These parties could see the same changes if they looked where there was nothing to cross with. Mr. T. A. Knight, the famous President of the Royal Horticultural Society of England, told that body, in 1824, that, after all his experiments, he could find no change through the immediate action of pollen. He had found abundant change independently of pollen. He instanced especially a Coe's Golden Drop Plum, which once produced a branch with red fruit, when he had no plum like it to act in the cross. Sabine, the secretary, as famous as an investigator as Knight, after summing up all the evidence up to his time, declares that there is no warranty for a belief that the many curious changes are due to the influence of pollen. He says, as we say now, nearly a hundred years later, "investigation is necessary to discover the real cause of these changes." The probable cause is in the inherent power of all plants to vary, not only in the fruit, but in every part of the plant. Some changes have been noted in crossed seed, but a seed is really a part of the new individual, quite as much as it is of the old one, and one might reasonably look for immediate change there.

WINTER-GROWN VEGETABLES.—It has been the work of MEEHANS' MONTHLY to show that there is good profit in raising fruits or vegetables under glass in the North, in spite of the fact that the milder climate of the South seems to render such success out of the question. Last year it was shown to what an enormous extent lettuce, under glass, was being grown for the Boston market,—and tomatoes are being raised in many places. Possibly the largest venture of this kind is at Richfield, Minn. The houses are of enormous extent, and are heated by a steam engine located four hundred feet away. The *Market Garden* tells us of its success the past winter:

"There are 38 beds running north and south with a row of tomato vines on each side of the pipe supports, and 39 plants in a row, making 2,964 plants in all. The vines are 16 ins. apart in the row, with a space of 30 ins. between rows. The beds are seven feet wide, with a 12-in. path between them, leaving an open space of five feet between every other row. Two main rows of two-inch water pipes, running east and west, with a faucet at every bed, furnish complete irrigation facilities. The seed was sown August 1st, and the plants set out September 1st. During the first week in November the first fruit was picked. The vines have been trained on cords or wire and are now nearly 10 feet high. 3,000 pounds of tomatoes have been picked thus far, and Mr. Busch estimates that he will get 8,000 pounds more by the end of the season."

This was only up to the middle of December, when Florida tomatoes were selling in Chicago for between three and four dollars for a four-basket crate.

TOMATO CULTURE.—Many methods of supporting tomato plants have been suggested. Inverted (Λ) trellises are frequently used with good results.

Digitized by Google

THICK SKINNED ORANGES. — "MEEHANS' MONTHLY states that the question was asked an orange grower why they continue to produce thick-skinned fruit when the demand is greater for the thin-skinned varieties.

The reply was 'that the public would give no more for a box of thin skins than for a box of thick ones—and, as there was consequently more profit in growing orange skins than in growing orange flesh, the skins carried the day.'

The MONTHLY goes on to say:

'We have never heard such an explanation before, and this may be only 'chaff.' Still, the great question remains, why do orange growers graft and plant thick-skinned sorts, when the thin-skins are preferable?'

We assure Brothers Meehan that the grower referred to was conversing largely through his sombrero. The writer has had much experience among orange growers in Florida, California and in orange growing countries outside of the United States, and yet never knew a grower to recommend or plant a variety because of its thick skin. To say that growers generally prefer thick-skinned fruit for the reasons stated in MEEHANS' MONTHLY, is absurd to the last degree. Every effort is made to reduce the thickness of the skin on the favorite varieties, and one of the great triumphs believed to be scored by Mr. Thomson in his 'improved Navel orange' is in producing a thinner skinned fruit. To say that the thin-skinned varieties are less prolific, is equally absurd, so far as California at least is concerned. Absolutely the most prolific orange grown in California is that known as the 'paper rind' St. Michael, from the thinness of its skin. Growers may continue to produce thick-skinned fruit; not because it is thick-skinned, but because it has other qualities which recommend it as superior to the thin-skinned sorts. This is the only practical reason why thick-skinned oranges are produced; and nine-tenths of all growers would be only too glad to dispose of all the skin possible, as well as seeds, in all varieties of oranges produced.

It has been remarked a thousand times by California growers that if the paper rind St. Michael were a seedless orange it would be the most profitable variety to grow because of its small size and its thin skin. Many regard it as the most profitable orange, in spite of its large number of seeds, and solely because it is prolific, thin-skinned and of small size."

The above kindly correction is from the *California Fruit Grower*,—and now MEEHANS' MONTHLY riseth to inquire what are the peculiar qualities which are of value to the grower of a thick-skinned orange? The whole question was stated in the interest of general information.

PARADISE APPLES.—Dwarf apples, properly so-called, seldom grow more than five or six feet high. An occasional one will reach ten feet. When they grow taller, it is caused, as sometimes in the pear or the quince, by the part grafted on the root throwing out natural roots of its own. The Paradise stock is a small species of wild apple, growing in the mountains of Asia Minor, and naturally only a strong-growing shrub. It is the *Pyrus pumila* of botanists. Dwarf apples are very pretty ornaments for small gardens; but the demand is so limited that nurserymen seldom keep them.

CROPS OF STRAWBERRIES.—The Agricultural Experiment Station of Pennsylvania, in Centre County, has been testing the bearing capacity of strawberry plantations. The tests show the second year from planting is the most productive. Proportionate weights of some varieties are given as follows,—they were from plants matted in the rows:

Planted in 1891.	Yield in 1893.	Yield in 1894.
Cumberland	2,902	4,555
Greenville	9,552	11,115
Shuster (Gem),	7,632	14,805
Crescent,	5,287	5,865
Wilson,	5,280	2,445

A PROFITABLE PEAR ORCHARD.—Prof. S. B. Heiges, the Pomologist of the U. S. Department of Agriculture, describing a visit to South Haven, Michigan, says:

"The pear orchard of Charles S. Mills, near South Haven, was the finest that ever came under the observation of the writer. The trees were about 8 years old, mostly Angouleme (Duchess), and in 1893 the entire crop averaged $5 per barrel in Chicago; in 1894, the crop was simply enormous."

MANURE FOR VEGETABLES.—While mineral manures are better for vegetables grown for seeds or fruit, stable manure is preferred for leaf-producing kinds.

Digitized by Google

BIOGRAPHY AND LITERATURE.

UNSEEN BEAUTIES.

"Full many a gem of purest ray serene
The dark, unfathomed caves of ocean bear;
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air."

—GRAY.

JOEL J. BAILY.—Mr. Joel J. Baily is well-known, not only in Philadelphia, but in many parts of the United States, by reason of his great interest in all philanthropic enterprises in many things which redound to the benefit of humanity. He is also one of Philadelphia's leading amateur horticulturists. His gardens and grounds are always attractive to lovers of fruits and flowers. He has an excellent gardener in Mr. George Fowler.

LONGEVITY OF SEEDS.—Monsieur Casimir De Candolle sends us a copy of his paper on the longevity of seeds. He has found that there is a period of suspended animation, as one might say, and which, if long continued, will enable a seed to live for an indefinite period. One of the essentials to this suspension is a low temperature. This is in accord with the recent observations of others. Deep in the earth, under regular temperature, or under other circumstances favorable to regularity and exclusion from the atmosphere, seeds will undoubtedly live for a long time.

NINE HUNDRED AND NINETY-NINE QUERIES WITH ANSWERS FROM LANDRETHS' BOOK OF INQUIRIES UPON AGRICULTURAL AND HORTICULTURAL SUBJECTS.—Issued by D. Landreth & Sons, Philadelphia. Possibly no commercial enterprises are so flooded with letters of inquiry from customers as those which deal with seeds, trees and flowers. It was a happy thought to issue a work like this. The question that interests one will interest scores of others, and the book is more likely to serve general purposes than could be obtained from a large library. A firm that has been in existence over one hundred years will be an acknowledged mentor.

ERASTUS S. WHEELER.—Though he would be regarded as merely a local botanist, Erastus S. Wheeler, of Berlin, Mass., deserves a more honorable record, for his services to botany and entomology had a world-wide value. He died at his home on December 18th, in the city of Berlin, where he was born on the 15th of December 1832. He was well acquainted with the flora of the whole of our Eastern Continent, traveling continually in connection with the pursuit he loved. He never married.

THE EARLY CULTURE OF THE TOMATO.—A certificate is held by Mrs. Zelia T. Burkart, of Oak Lane, Phila., from the Pennsylvania Horticultural Society, owned by her father Conrad S. Esher, which reads:

"Presented by the Pennsylvania Horticultural Society to Conrad S. Esher as an honorable testimony of his having gained by his exertion and skill the premium for the growth of the best tomatoes submitted to this society this year. Sec., CHAS. PICKERING.
Pres., GEO. VAUX.
'Philadelphia, 1833.'"

Charles Pickering, by the way, is the famous author and botanical traveler.

DR. ALFRED L. KENNEDY.—A quarter of a century ago, no one was better known in agricultural and horticultural circles than that of Dr. A. L. Kennedy. Dr. Kennedy was in many respects a remarkable man. In many branches of science he was among the foremost, and his earnest efforts were directed to turning scientific truths to practical benefit of mankind. For some years he has dropped entirely out of view. It was suddenly discovered, by his tragic death, through the explosion of chemicals, that he had been leading the life of a recluse in a solitary room, still studying and recording results of experiments he had been making. The death occurred on the 30th of January. He was born in Philadelphia on October 25, 1818, and was thus in his 78th year.

Digitized by Google

BIOGRAPHY.—Among the studies in human life, biography is perhaps the weakest. In the far away past stories are told of great men, that we now know could have never happened. In our own time many prepare their own future histories; and, even in the most conscientious cases, the "best foot is placed foremost." A story is told, in a recent life of the Duke of Wellington, which cannot be true. It is said that the late Mr. Loudon, whom most of us remember as the author of numerous books on trees and gardening, wrote to the Duke for permission to examine some beech trees growing in his garden. It is said that the letter simply asked the Duke to permit him to examine his beeches, without any further explanation, and that it was merely signed C. J. Loudon. English Bishops use their titles rarely. The Duke thought the letter came from "Charles James (Bishop of) London" and read beeches "breeches." He thought, says the story, that the Bishop had a cranky notion to see the breeches he wore at the battle of Waterloo; and wrote to the Bishop that he might see the breeches if his valet could find them. The Bishop, in turn, thought the Duke had gone crazy,—and it was some time before the Duke came to understand that it was not Charles James of London, but Charles James Loudon, and that it was the beeches in the garden, and not the breeches in the old clothes closet, that was the subject of correspondence.

That the story is wholly apocryphal is clear from the certainty that Mr. Loudon's letter would have had some adjectives at least, by which the Duke would have understood why he desired to see the beech trees, which had the reputation of being very fine. There was no reason for writing for mere permission to look at a beech tree, for Mr. Loudon was well-known, and welcome everywhere; but above all his name was not Charles James,—the same initial letters as those which designated the Bishop of London,—but John Claudius Loudon.

REFERENCE BOOKS.—Sometime since a remark was ventured that the comparatively wealthy Massachusetts Horticultural Society would render inestimable service to horticulture and horticultural botany if they would compile a complete index of all the matter ouched on in Hovey's Magazine,—and this might be extended to other serials. The United States Department of Agriculture did valuable service a few years ago by getting out such an index for their reports. But the whole range of literature needs going over in the same way. The thought arises from a kind letter from the Old World, hoping that "Meehaniana" might be collected together before the senior Conductor of this magazine should sit down to rest. But active workers are too busy making history,—but societies might very well do such work.

THORNY PLANTS.—Mr. F. N. Tillinghast sends the following extract, with the comment, "Is it true?"

"One of the uses of thorns is to protect the plant from animals which feed on herbage. Says *La Nature:*

Nearly all plants that have thorns in their wild state lose them after generations of cultivation. It is as if plants brought under the protection of man gradually lay down their arms and trust themselves entirely to his protection."

It would be difficult for any one to furnish the proof of this. The holly and the hawthorn have been under cultivation extensively in the Old World, the seedlings in each generation from cultivated trees, but they are thorny still. If Homer and Sappho, or other ancients who sang so sweetly of the roses a couple of a thousand years ago, were living now, they would find to-day that there was no "rose without a thorn."

AMERICAN GARDENING.—The well-known semi-monthly horticultural serial, *American Gardening*, has become a weekly. It is the oldest magazine, genealogically considered, in existence. When the publisher and proprietor of the *Gardeners' Monthly*, Chas. H. Marot, died suddenly and unexpectedly, *American Gardening* stepped in and purchased its subscription list, as the *Gardeners' Monthly* had before absorbed the *Horticulturist*. The last named was established in 1846 by A. J. Downing. It is a record to be proud of, and on which we congratulate our contemporary.

MODERN ART.—The beautiful quarterly, *Modern Art*, hitherto published in Chicago, is in the future to be issued in Boston by Messrs. Prang & Co.

Digitized by Google

GENERAL NOTES.

EVAPORATING FRUITS.—There is far too little done in the way of giving credit to the public benefactors,—possibly because so many of them patent their inventions, and the public therefore considers that as we give them an exclusive right to sell their goods, that this is reward enough; but there are many inventions of this kind that are of immense national importance, and it does seem that some honor is due, even though the parties have secured patent rights for their invention. We have this fact in mind while reflecting on the enormous value America has received from those who have worked up good methods of evaporating our surplus fruit. Among these useful citizens prominently stands the name of B. L. Ryder, of Chambersburg, Pa. (The Company is now at Waynesboro.) There can be no question, but that the invention of the American fruit-dryer by this gentleman gave the great impetus to this industry, which has brought this great national benefaction.

FOREST FIRES.—It is many years now since the senior Conductor of this magazine pointed out that nothing could possibly save American forests from serious conflagrations but some well directed effort to get rid of dead brushwood, which everywhere abounds. It is pleasant to note that this seed sown so long ago is now bearing fruit. Secretary Morton has distinctly stated to one of the Forestry Conventions, that there is absolutely no other hope of saving a forest from fire than the removal of the dead brush-wood,—and this idea is now being taken up in forest articles in newspapers, and in speeches in conventions. In the early part of the season it was stated that the losses by forest fires in New Jersey would certainly come up to two hundred thousand dollars. Then, it was stated, that if the State of New Jersey were to appropriate two hundred thousand dollars for the employment of forest wardens, it would be a cheap thing to do. These forest wardens are to have nothing to do but to sit around and wait for the beginning of the fire, and then put it out. If a hundred thousand, or only fifty thousand dollars, were spent in removing dead brush-wood, which feeds the fire, the money would be better spent. But the universal weakness of our people is to think that nothing can be done unless the state has a "finger in the pie,"—not only in forestry, but in many other good efforts. The true forestry policy should be to encourage private enterprise. The state might give a bonus for the best cared-for forest after a certain number of years, and it might relieve forest lands from their share of taxation. In many ways it could be made the interest of owners to plant forests and to care for those which are worth caring for. To our minds, the talk of the forest wardens, and similar state expenditures, are all labors at the wrong end.

MEEHANS' MONTHLY IN LIBRARIES.—So many great works come to an untimely end, that MEEHANS' MONTHLY naturally came under the general suspicion that it would do likewise, as apparently did the "Native Flowers and Ferns of the United States." But it was to continue this great work that MEEHANS' MONTHLY was started. A continuous work, under ordinary publishing houses, is uncertain. The nursery firm of Thomas Meehan & Sons have undertaken it, simply to give assurance that it will be continued for all time. As it must become a permanent work of reference, libraries, with confidence now that the work will be permanent, are looking up back volumes. These early complete sets are getting scarce. There are at the present time less than two hundred sets on hand.

THE DRUGGISTS' TROUBLES WITH CHANGES OF PLANT NAMES.—The druggists are now complaining of the Babel which the wholesale changing of botanical names is inducing. In many cases it is literally a question of life or death with them.

Digitized by Google

LORD & BURNHAM CO.

HORTICULTURAL ARCHITECTS AND BUILDERS

STEAM AND HOT WATER HEATING ENGINEERS
Plans and Estimates furnished on application

Largest Builders of Greenhouse Structures. Six Highest Awards at the World's Fair
Send four cents postage for illustrated catalogue

LORD & BURNHAM CO.
ARCHITECTURAL OFFICE, 160 FIFTH AVE., COR. 21st STREET, NEW YORK.
Factory: Irvington-on-Hudson, New York Mention Paper

GARDENING

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
BY
THE GARDENING COMPANY
MONON BUILDING, CHICAGO

SUBSCRIPTION PRICE, $2.00 A YEAR—24 NUMBERS

The most practical and valuable American Horticultural publication. DEPARTMENTS: The Flower Garden, Trees and Shrubs, The Greenhouse, The Window Garden, The Fruit Garden, The Vegetable Garden, Insects and Other Pests, Mushrooms, and others in season. See what subscribers say about this valuable journal.

"For condensed common sense in gardening matters, for reliable, unprejudiced and safe information, GARDENING cannot be surpassed, and although moderate in size it expands upon perusal." W. C HGAN, Highland Park, Ill.

"GARDENING is the best horticultural paper printed in America." CHAS L. BURR, Springfield, Mass.

"I am greatly pleased with the paper. It is practical and suggestive. Its reproduction of photographic views of plants, flowers and landscapes is a most admirable feature." W. M. JOHNSON, Hackensack, N. J.

"It is a delightful paper and has been very interesting and instructive to me." FRANK HITCHCOCK, Davenport, Ia.

"I have found GARDENING extremely useful and interesting. You have given your subscribers a great deal more than their money's worth." CHAS. E. BROWN, Yarmouth, Nova Scotia

"Such a publication was long needed in this country. Every line of its contributions is a lesson in itself to many professionals as well as to amateurs." JOHN BERRY, Gardener to Senator Wolcott, Littleton, Colo.

"I value GARDENING highly on account of the very practical character of its contents." J. A. PETTIGREW, Supt. Lincoln Park, Chicago

"I regard GARDENING as one of the most practical magazines issued in the interests of horticulture." W. F. MACARA, Waterville, N. Y.

"The paper is the most practical of any I read." W. E. ABBS, Fond du Lac, Wis.

"I subscribe to all the horticultural and floricultural journals on this continent as far as I know and find in GARDENING the most practical one for an amateur like myself." DR. GEO. T. HAWLEY, Corning, N. Y.

PRACTICAL. POPULAR. SCIENTIFICALLY EXACT.

Indispensable to all who love gardens or the literature of gardens; to all who own country places or take pleasure in rural scenery; to all who desire a broader knowledge of trees, shrubs, fruits and flowers. GARDEN AND FOREST stands for the protection of our forests, the preservation of natural beauty, for a purer taste in the design and decoration of public and private grounds, and is universally pronounced the best horticultural journal ever published for Americans.

"Wise, intelligent, entertaining."—*Harper's Weekly.*
"Rich variety of remarkable engravings."—*N. Y. Post.*
"Winning, delightful and accurate."—*N. Y. Tribune.*
"A compendium of new information."—*N. Y. Herald.*

BEAUTIFULLY ILLUSTRATED. WEEKLY. $4 00 A YEAR.

Specimen copy free on application.

Garden and Forest Publishing Co. Tribune Building, NEW YORK

WHEN WRITING TO ADVERTISERS, TELL THEM YOU SAW THEIR CARD IN MEEHANS' MONTHLY.

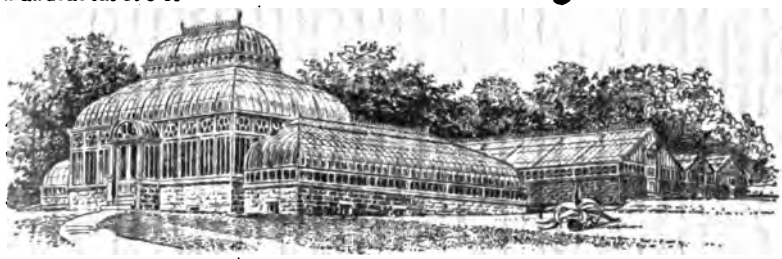
Digitized by Google

HITCHINGS & CO.

ESTABLISHED 50 YEARS

HORTICULTURAL ARCHITECTS AND BUILDERS

and largest Manufacturers of **Greenhouse Heating and Ventilating Apparatus**



The highest awards received at the World's Fair for Horticultural Architecture, Greenhouse Construction and Heating Apparatus.

Conservatories, Greenhouses, Palmhouses, etc., erected complete with our Patent Iron Frame Construction.

SEND FOUR CENTS FOR ILLUSTRATED CATALOGUES.

233 MERCER STREET, NEW YORK CITY

Trees, Shrubs, Evergreens, Vines and Hardy Plants

Our stock is one of the finest in the United States. Strong, thrifty, well-rooted and carefully selected to please our customers. **New Catalogue for Spring, 1896.** Everything accurately described and it is also profusely illustrated. Large buyers will be particularly interested in this catalogue. It will be mailed free upon application.

Landscape Engineering.

Plans prepared and carefully carried out for grading, roadmaking, planting and remodeling old places. Special arrangements made when extensive work is contemplated. Correspondence solicited.

THOMAS MEEHAN & SONS

Nurserymen and Landscape Engineers — GERMANTOWN, PHILADELPHIA.

EDWARD CAMPBELL

LANDSCAPE ARCHITECT AND ENGINEER

ARDMORE, - PA.

Sketch plans and planting maps prepared, and suggestions given for the laying out and improvement of country and suburban residences, public parks and grounds of every description.

Grounds laid out and their construction undertaken by contract or day labor, and carried out under strict personal supervision. The choice grouping and effective arrangement of trees and shrubs has been made a special study. Trees furnished and planted by experienced workmen.

Draining Plans and Surveys. **Fine Crushed Stone for Walks and Carriage Drives.**

HARDY ORNAMENTAL TREES, SHRUBS, VINES, EVERGREENS, AND HARDY HERBACEOUS PERENNIALS. The finest general assortment of Hardy Ornamental Plants in America. Two hundred page illustrated descriptive catalogue on application. Plans and estimates furnished. Send your list of needs for special rates.

THE READING NURSERY, JACOB W. MANNING, Proprietor, READING, MASS.

WHY USE PUTTY

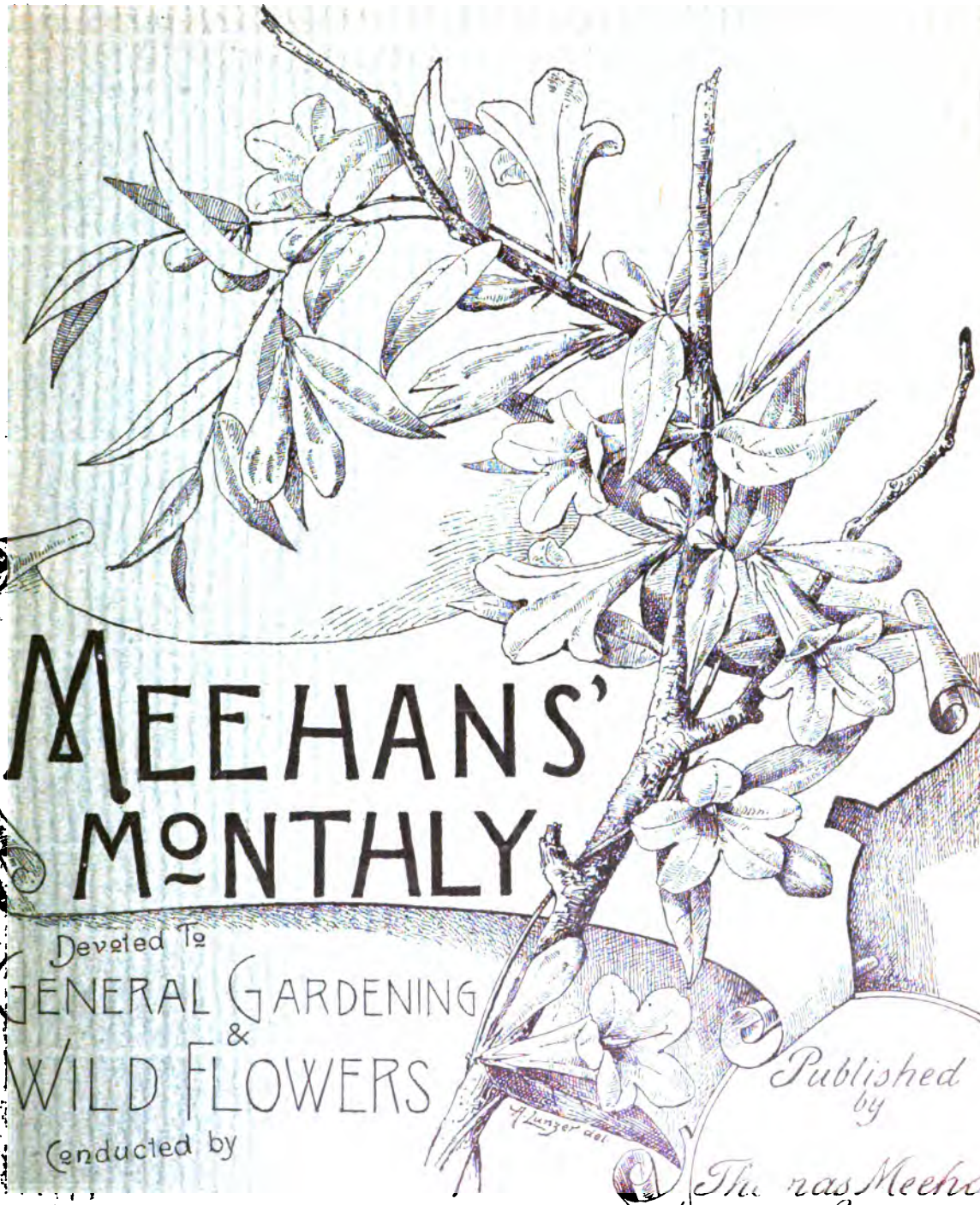
and wood sash bars on your iron greenhouse when **patent puttyless steel glazing** has reached **perfection**, at only a slight advance in cost. Send for catalogue.

JOSEPHUS PLENTY, Jersey City, N. J.

Digitized by Google

VOL. VI APRIL, 1896 No. 4

ISSUED MONTHLY, $2.00 PER YEAR IN ADVANCE, SINGLE COPY 20 CENTS.



MEEHANS' MONTHLY

Devoted To
GENERAL GARDENING
&
WILD FLOWERS

Conducted by

THOMAS MEEHAN

Published by
Thomas Meehan & Sons
Germantown
Philadelphia

COPYRIGHTED 1896

ENTERED AT THE PHILADELPHIA POST OFFICE AS SECOND-CLASS MATTER.

Digitized by Google

Meehans' Monthly

PUBLISHED MONTHLY BY

THOMAS MEEHAN & SONS,
Germantown, Phila.

Subscription Price $2.00 per year.

$1.00 for Six Months. Back Numbers 20 cts. Each.
Two Subscriptions for $3.50 per Year.

ADVERTISING RATES ON APPLICATION

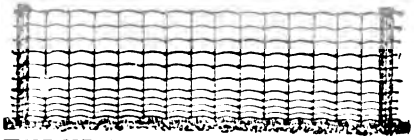
Forms close on the 20th of each Month, preceding date of issue.

Address all Correspondence relating both to Editorial and Advertising matter, to

THOMAS MEEHAN & SONS, Publishers
Germantown, Phila., Pa.

"UP-TO-DATE"
SPRAY PUMPS
EXPRESS PAID
Satisfaction Guaranteed or Money Refunded. Endorsed by Leading Entomologists. 60,000 in use. We are U. S. Headquarters for Spray Pumps and Insecticides. Catalogue, Spray Calendar, and full Treatise on Spraying, FREE.
$17 SPRAYING OUTFIT EXPRESS PAID, FOR $5.50
P. C. LEWIS MFG. CO., Box 127 Catskill, N.Y.

SALZER'S SEEDS
Over 250,000 Farmers, Market Gardeners and Citizens attest to the superiority of
SALZER'S SEEDS.
We are the only seedsmen in America making a specialty of Farm seeds, and are the largest growers of Oats, Wheat, Potatoes $1.50 a bbl., Grasses, Clovers, Fodder Plants, etc., in the world.
1,000,000 ROSES,
Plants and Small Fruits.
VEGETABLES.
Enormous Stocks, Northern Grown Onion Seed only 90c. per pound. All prices low.
35 Pkgs. Earliest Vegetables, postpaid, $1; 10 pkgs. Flower Seeds, 25c.
Mammoth Catalog and 10 pkgs. Grains and Grasses, 10c. Catalog free for 5c. postage.
JOHN A. SALZER SEED CO.
LA CROSSE, WIS.


TURKEY SUBDUED AT LAST.
In spite of the common belief that she could not be restrained, an eastern man raised an immense drove, pent up with PAGE, from the egg to the oven. See picture in "Hustler"
PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

All the Novelties in Plants, etc.
Allamanda Williamsi, 25c.; Asparagus Sprengeri, 40c.; Bougainvillea Sanderiana, 25c.; Cobœa Macrostemma, 20c.; Caryopteris Mastacanthus, 15c.; Clematis Stanley, 50c.; New Geraniums—12 sorts; Chrysanthemum Wm. Simpson, 35c.—many others. Carex Japonia aurea var., 30c.; New Coleuses, 15c.; Heuchera Sanguinea, 25c.; Tecoma Smithi, 20c.; Solanum Wendlandi, 40c.
Spiræa Anthony Waterer, 20c.; New Double Rudbeckia, 40c.; Physalis Franchetti, 25c.; Yitis Coignettiæ, 40c.; Japanese Maples, 50c.; Dwarf Flowering Cherries, 50c.; Lord Penzance Sweet Briars, 35c.; New Rose, Crimson Rambler, 15c.; New Rose, Golden Rambler, 50c.; New Rose, Carmine Pillar, $1; New Rose, Climbing Meteor, 40c., etc., etc. Several new and wonderful Fruits. 700 Rare Cacti. New Cannas. New Dahlias. Catalogue of New and Rare Plants free. Catalogue of Cacti free.
A. BLANC & CO.
314 and 316 N. Eleventh St., Philadelphia Pa.

Small Shrubs
We grow Shrubs in large quantities and frequently have inquiries for small plants in considerable numbers. Our new Catalogue for Spring, 1896, contains full price list of these, as well as Trees, Evergreens and Hardy Plants.
Catalogue mailed for 6 cents in stamps.
Thomas Meehan & Sons
Nurserymen and Landscape Engineers
Germantown, Phila.

Standard Varieties
Raspberry and Strawberry Plants
Send for Price List
HYRE BROS.
Box 464 DAYTON, OHIO

CYPRESS
IS MUCH MORE DURABLE THAN PINE.
CYPRESS SASH BARS
UP TO 32 FEET IN LENGTH OR LONGER.
GREENHOUSE
AND OTHER BUILDING MATERIAL.
Send for our illustrated Book
"CYPRESS LUMBER AND ITS USES."
Send for our Special Greenhouse Circular.
THE A. T. Stearns Lumber Co.,
Neponset, Boston, Mass.

Digitized by Google

Digitized by Google

Digitized by Google

AQUILEGIA CŒRULEA.

ROCKY MOUNTAIN COLUMBINE.

NATURAL ORDER, RANUNCULACEÆ.

AQUILEGIA CŒRULEA, Torrey.—Spurs traight, very slender, one and a half to two inches; sepals rhomboid-ovate, acute, longer than the petals; stamens and style shorter than the corolla; stem one to three feet high, glabrous, few flowered; flowers two to two and a half inches in diameter, pale blue, sometimes ochroleucous, pinkish or white. Leaves mostly radical, glaucous beneath; leaflets deeply cleft. (Porter's *Flora of Colorado.*)

There are but few persons who are not interested in knowing how plants come by their names, and there has been much speculation in relation to the botanical name, *Aquilegia*, given to these plants. Most investigators have concluded, as Dr. Asa Gray expresses it, that "the name is derived from *aquila*, an eagle, from some fancied resemblance of the spurs to talons;" but that it is but a very far-fetched fancy is apparent from a glance at the nectaries or spurs in our plate. There is, however, a little more scope for the fancy in the curved nectaries of some of the European species, though very little even there.

But even this does not account for the latter portion of the name, and so some have sought a better explanation in *Aquilegium*, which means a gathering or collection of rain-water, and suppose it was given to this plant because the nectaries are so formed that they might gather or collect rain. But that this conjecture is unsound we may gather from the pronunciation which even from the oldest period that we can trace has been *Aquile-gia*, while the water-gathering supposition would demand *Aquileg-ia*. It seems more than probable that the name is derived from the old story of Ganymedes. Most persons are familiar with the story of the beautiful boy, Jupiter's cupbearer, who is represented on the back of an eagle flying through the air. Jupiter had a daughter, named *Aquilegia*, who was famed for her great beauty, and among her most ardent admirers was the handsome servant of Jupiter, who paid her frequent visits on his celestial bird. It so happened, however, that the maiden was more smitten with the eagle than with its rider, and she gave her heart to the bird. When Ganymedes at length understood the situation, he endeavored to repair matters by hiding the eagle when he came to court the maiden. But this only made matters worse. She pined for that eagle, broke her heart at its continued absence, and died. As was usual in these catastrophes, according to the Grecian stories, Jupiter, grieving for the loss of a favorite daughter, turned her dead body into a flower, and gave it this name after her death,—which means literally that her life was given or bequeathed to the eagle. If this explanation of the origin of the name be correct, it may explain many of the poetical allusions we often meet with in connection with *Aquilegia*. Miss Twamley says:

"Why, when so many fairer shine,
Why choose the homely Columbine?
'Tis Folly's flower, that homely one,
That universal guest,
Makes every garden but a type
Of every human breast;
For though ye tend both mind and bower,
There's still a work for Folly's flower."

And this idea, that in some way the flower represents folly, runs through most of the poetry of the columbine. It is a very old association, for even Shakespeare refers to it in connection with folly. There could be no greater folly than for the daughter of so great a god as Jupiter to die of love for an eagle, who would probably have preferred to devour the lady rather than return her love,—and thus the very old poetical association confirms the conjectured mythological origin of the name. Other poets have made references to the columbine in connection with its early blossoming, for some of the species are found among the first flowers of spring. The morning of the year,—the morning of life; the early spring flower, so sweet to the child,—all these have been typified in the early blooming columbine. As Jones Very sings in his well known lines:

Digitized by Google

"The morning's blush, she made it thine,
The morn's sweet breath, she gave it thee;
And in thy look, my columbine!
Each fond-remembered spot she bade me see."

Some of the species are quite remarkable for their early blossoms. *Aquilegia arctica* is in flower in the snow; and, indeed, our Rocky Mountain Columbine has been found under similar circumstances. Mr. T. S. Brandegee, in the fourth volume of the *Botanical Gazette*, remarks that "among the first flowers of spring are many that must live through many snow storms. Last September, after snow had fallen twice, I made two or three excursions up among the high summits of the Sierra Sangre de Cristo, and was surprised to find a great number of plants in blossom in shaded locations and under rocks where the snow had not melted away early enough to give them a good start. They seemed bound to live their lives out, even if they did have a hard time of it and it took a longer time than all summer. *Aquilegia cœrulea*, full of flowers, was standing in the snow." In the Rocky Mountains, especially on Gray's Peak, the writer of this has met with it at from about 7,000 feet elevation up to about 10,000 feet, which last figure denotes the line at about which timber ceases to grow, and the more strictly Alpine plants begin to appear. It seemed to be in about its greatest abundance and beauty at this timber line, though not as luxuriant as when found in lower elevations and in richer soil. The specimen here illustrated was obtained from that spot, and represents fairly the plant as growing there; though in rich garden ground under cultivation, it grows to a larger size than represented here as a native wild flower. Its companions on Gray's Peak were chiefly dwarf yellow composites, *Polygonum Bistorta* and other flowers attractive to bees and insects, which in that very pretty flower garden seemed unusually abundant for the Rocky Mountains. The Humble Bees seemed to frequent the columbine chiefly for the pollen, and, while gathering the pollen from flower to flower, evidently cross-fertilized them.

In the spot on Gray's Peak referred to, there appeared no variation in color. All had just the same purple sepals and white petals as represented in our plate. Other observers have, however, found locations where there were different shades of color. Miss Rose G. Kingsley, writing to the *Garden* in 1876 (Vol. IX), says, in some of the eastern slopes of the Rocky Mountains, she has found plants bearing blue flowers growing side by side with those bearing yellow and pinkish flowers, and every intermediate shades between these two extremes were represented; and Mr. Marcus Jones, in *Botanical Gazette*, reports that he has gathered yellow and blue from the same plant. The prevailing color is, however, purple-blue, as in our plate. Miss Kingsley says "the finest patch I ever found was on the edge of the great pine forest that covers the slopes of Pike's Peak, in Colorado. The flowers were nearly all blue, of an immense size, and shone out from under the shade of the *Pinus ponderosa* like pale blue stars."

Though known to cultivators as the "Rocky Mountain Columbine," there are other species which inhabit this immense mountain chain. One, *Aquilegia chrysantha*, is a brilliant yellow, but with proportionately small sepals and petals, and is thus easily distinguished from this species, which, though said to have sometimes "yellow" flowers, is not the yellow of the other species, but what is technically known as "ochroleucous." The species, however, readily hybridize under the hands of the florist, and there are in gardens such hybrids between our Rocky Mountain Columbine and the Golden Columbine, which combine the features of both. Some have the petals—the inner series of floral leaves—clear sulphur-yellow, and the spurs and the sepals pale blue.

The plant was first found by Dr. James in the Rocky Mountains during Long's exploring expedition, and is described by Dr. Torrey in the volume for 1827, of the Annals of the New York Lyceum of Natural History, so that it is a comparatively recent discovery; and it was subsequently found in the Wind River Mountains on the Fremont expedition. Nuttall found the yellowish form, and in 1834 described it in the Journal of the Philadelphia Academy as *Aquilegia leptocera*, in which he was followed by Sir W. Hooker in the *Botanical Magazine*. Writing in 1864, Sir W. Hooker says "we had it from our collector, Mr. Burk, who found it near Fort Hall. In my opinion it is not only the queen of columbines, but the most beautiful of all herbaceous plants."

EXPLANATION OF THE PLATE.—1. The whole of the upper portion of a small plant. 2. A root-leaf, showing the dilated base of the petiole.

Digitized by Google

WILD FLOWERS AND NATURE.

AN EASTER MORN.

Welcome to weary hearts its harsh forewarning
  Of light and warmth to come,
The longed-for joy of Nature's Easter morning,
  The earth arisen in bloom!

In the loud tumult winter's strength is breaking;
  I listen to the sound,
As to a voice of resurrection, waking
  To lift the dead, cold ground.

Between these gusts, to the soft lapse I hearken
  Of rivulets on their way;
I see these tossed and naked tree-tops darken
  With the fresh leaves of May.

—WHITTIER.

BEES AND CLOVER.—"I must express my pleasure, with thanks, on seeing in your January magazine, the fact endorsed that clover is self-fertilizing and needs not the agencies of the bumble bee to produce seed. You will kindly allow me some explanation. You doubtless know very well that there are a great many writers, smart with the pen in their expression when repeating what others have found out, and of which they have no idea. It was very provoking to read every little while the story of the Australian bumble bees' performance,—even lecturers referred to it. To be sure before I ventured out with my assertions, I wrote to Mr. L. O. Howard, Entomologist in Washington, D. C., who had on previous occasions given me valuable information; but this gained nothing but the answer that it was out of their line, and he had referred it to the Botanical Division, and doubtless it would be answered from there. I wait yet for it; but meanwhile our Connecticut friend, Mr. James B. Olcott, long an agricultural contributor to our *Hartford Courant*, was sent to Australia in the interest of grasses by the Department. I had the secrect hope that he might too have a little private mission in finding out about the bumble bees. You know women indulge often in all kinds of fancies,—why should not I be interested in the pretty "Hummel," as we Germans call them, who delight me always with their sonorous voices and their industrious habits. I am very grateful that the clover seeding is cleared up in my mind." WILHELMINE SELIGER.

Hartford, Conn.

The comment on copying by bookmakers, and palming ideas off as original, is not too severe on the part of Mrs. Seliger, as all who have to work up original matter know. The absurd statement that "Mr. Meehan has stated that the seeds of the American blackberry never germinate in America," started by somebody's error many years ago, is still appearing in text books. In relation to this bumble bee and clover story, it seems to have originated in a single observation of Mr. Darwin's, who attributed to the absence of insects, what should have been referred to imperfect nutrition. But we shall never hear of the many observations that have been recorded to prove him wrong.

Appended is another note on the same topic.

"I was especially pleased to read the note concerning the bumble bee and clover question.

"I have always thought it a great fraud to claim that bumble bees are necessary to fertilize the clover. For several years past especially, I have thought of it. I have driven, with my horse and pony, long, long drives, through the spring, summer and fall. Great fields of clover bordered the roadside, and as I enjoyed the delicious odor, I always drove slowly whenever I came to a clover field, and watched for bumble bees. How few I saw! It was dreadful to think that those few bumble bees must visit every clover head, and every floret in each head! Always a 'doubting Thomas,' I came to think it simply nonsense to believe it true, and hence my pleasure in your note."

MRS. W. A. KELLERMAN.

Columbus, Ohio.

BLUE CURLS AS FODDER.—Mrs. Seliger reports that the Blue Curls, *Trichostemma dichotoma*, is a favorite food with cows at pasture. It would thus seem that cattle have a taste for aromatics as human beings have.

Digitized by Google

TIME OF FLOWERING OF SYMPLOCARPUS FŒTIDUS.—As the first after a New Year of our common plants to bloom, a few notes upon the "Skunk-cabbage" may be of interest. Pursh, writing in 1814, gives its time of flowering from February to April; W. P. C. Barton, in 1818, from April to May; Henry Muhlenberg, in 1818, April; Dr. Barton, in 1825, March and April; Dr. Darlington, in 1837, February and March; Dr. Darrach, in 1853, February.

As all these writers were practically writing of plants for the same section of country,—the eastern part of the "Middle States,"—the variation is the more noticeable.

The writer of this has noted the plant for several years, and is of the opinion that in the section of country mentioned, it never fails to bloom in January. The plant perfects its flower buds in the "fall," and the few "moderate" days seasonable a little before, or a little after the New Year, serve always, it would seem, to open them. On February 13, 1887, February 19, 1888, and February 12, 1893, I found the flowers in bloom by hundreds, fully open, with the pollen dropping. On January 13, 1889, January 12, 1890, December 24, 1893, January 20, 1895, and January 12, 1896, I found the flowers fully developed, with the pollen mature.

Sometimes the flowers open, and are afterwards frozen, as is the case this season, but generally the bloom continues perfect, until the the ravages of nature cause them to shrink and disappear. EDWIN C. JELLETT.

Philadelphia.

INSECT LIFE UNDER LOW TEMPERATURE.—Regarding the paragraph "Insect life under low temperature" at p. 24, our observing correspondent, Mr. Timothy Wheeler, Moscow, Vermont, says:

"Mr. George B. King asserts that 'insects freeze solid during the winter and thaw out when warm weather comes.'

You reply—'This surely has never been demonstrated.'

Allow me to say that I have seen thousands upon thousands of frozen mires, and winged ones at that, while I have been chopping in the woods, and while working up wood-piles at the house.

Often have I carried them into the house, and in a few minutes they would be crawling around as lively as ever. Often I have found a pint or more in a pile all frozen and crystals of ice among them. Hundreds of farmers here would tell you the same. Also fish have been found frozen in ice, and have been put into water, and when thawed out were as lively as ever.

Fish have been caught and thrown upon the ice and frozen there, then put into a pail of water and soon they were swimming around again.

I trust you will believe my testimony. You remark—'If once the power of evolving heat is lost, life goes with it.' Surely I believe this statement, when the '*power*' of evolving heat is gone; but, is it logical to conclude that the *heat* cannot be restored?

My research has led me to conclude that *heat* and *life* may remain dormant indefinitely under certain conditions, and then, under suitable conditions, may be restored.

For many years I have thought that frost *arrests* heat, life and growth simply, and improper thawing out destroys the same.

I hope you may excuse me for taking up so much of your valuable space with this."

But, for all Mr. King's conclusions, there are difficulties in the way which Mr. King should solve. Tyndall has clearly shown that there is no such thing as latent or dormant heat. It is a mode of motion. There can be no motion (of the gasses) when a cell is frozen "solid." That the watery matter in the intercellular spaces may crystalize under low temperature, is conceivable—but this is not freezing "solid." Even watery matter, when mixed with alcohol, does not freeze as readily as water alone—and it is not at all improbable that in trees, the sugary matter may turn to "rum" under some conditions, and thus save a "solid" freeze. But more exact knowledge is desirable.

There is no necessity, for asking to be excused. MEEHANS' MONTHLY desires to get at the exact facts in all things, and may be wrong sometimes as well as its correspondents.

There must be a wide belief, among scientific people, that insects do not freeze "solid" in winter time, or it would not have been necessary for Mr. King to go over the matter again.

There are many things yet to be considered in connection with this question. Hardy plants shrink, the others freeze and die afterwards.

Digitized by Google

THE ODORS OF FLOWERS.—The New York *Independent* notes a point already referred to in MEEHANS' MONTHLY, that "it has only recently been brought prominently to notice that in large families of plants having showy corollas very few have fragrant species, and yet there are generally one or two species in nearly all these large families that are sweet. The great Linnæus noted this fact, though not seeming to be very much concerned with the fact as a matter for philosophical speculation. But among the many inodorous species of violets he stamped one as *Viola odorata;* among the mignonette family one as *Reseda odorata;* among the golden-rods *Solidago odorata;* and in the begonias he gave us *Begonia odorata.* These singular exceptions are being added to in other large families of plants. Miss Margaret Thompson, of Minneapolis, has recently placed on record, that among the large list of odorless species of phlox, one growing in the Black Hills (*Phlox cæspitosa*) is delightfully fragrant."

ONOCLEA STRUTHIOPTERIS, — STRUTHIOPTERIS GERMANICA OF WILLDENOW.—Of this pretty plant, commonly known as the Ostrich Fern, Mr. W. N. Clute says in regard to a recent paragraph:

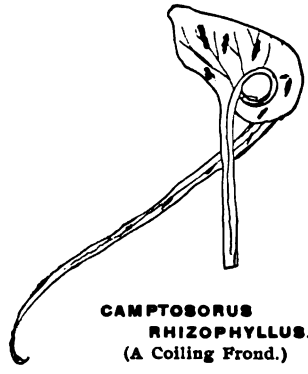
"Regarding the statement in a former issue of the MONTHLY, that the *Onoclea Struthiopteris* had probably not been collected South of Pennsylvania, allow me to say that in 1894, C. E. Waters, of Baltimore, Md., found a colony of this fern on the banks of the Gunpowder River, twelve miles north of Baltimore. The river runs down from Pennsylvania, and the ferns might have been transported from there in the first place. This fern grows in great luxuriance about Binghamton, N. Y. A small island in the Susquehanna is completely given up to them, and at a little distance looks like a field of grain in summer. The writer, who is over six feet in height, has picked fronds here that were taller than himself, and a man of average height is completely lost from view among their waving pennons."

A NATURAL WHITE PINE FOREST IN NEW JERSEY.—SEE PAGE 74

Digitized by Google

COILING OF A FERN.—The enclosed is a drawing of a very curious shaped frond of the walking-fern, (*Camptosorus*) which appeared on one of these plants in my fern garden. This frond has made two complete revolutions in a plane parallel to the surface of the leaf, or side-wise. The coils begin near the base, and, as far as they extend, only one side of the frond is developed; otherwise it is like any other frond and has produced spores. The coils are nearly flat, and apparently were formed when the frond was unrolling by two revolutions slipping sidewise instead of unrolling toward the tip. WILLARD N. CLUTE.

These occasional wanderings from what we regard as normal conditions are the hints Nature furnishes us to show how variety exists in nature. Most biologists now believe that, in some way not yet demonstrated, one species has been evolved from some other species;



CAMPTOSORUS RHIZOPHYLLUS.
(A Coiling Frond.)

either from another species still existing or from species utterly extinct. Two modes have been suggested,—one, that changes occur through gradual modification through indefinite ages,—the other, that, at some period of the world's history, sudden changes appear, under the impulse of some internal growth force, the nature of which is unknown. Instances such as this furnished by Prof. Clute favor the sudden idea. There is no gradual modification in the twisted fern, and one might say if one frond can curl this way at one time, why may not hundreds simultaneously do so at another?

As to the method by which such changes as these are brought about, we also get a glimpse. Growth in plants is of a spiral character. When a leaf-blade is formed, the spiral development is very weak, but not wholly exhausted. Hence in many plants, especially in Compositæ, and notably in *Liatris* and Compass Plants, we have vertical leaf-blades. This case is another illustration that the spiral growth force was more powerful than usual.

LIFE UNDER LOW TEMPERATURE.—A brief paragraph in the MONTHLY for February holds that it has "never been demonstrated that insects freeze solid in winter and thaw out when warm weather comes;" the writer holding that "when the power of evolving heat is lost, life goes with it," and that "this is a great principle in biology," and 'tis further suggested "there are liquids which do not freeze under a low temperature, and these possibly enter into the insect organization."

Surely, the last remark must be considered entirely gratuitous, until science has demonstrated the existence of such juices in the organization of any well-known living creature.

There are some wonderful provisions of nature for the maintainance of the temperature of the human body at 98½ degrees in winter and summer, whether under the equator or the polar circles. A variation in temperature of the body of 3 degrees below or 8 or 10 degrees above normal generally means death,—and yet human beings claim to have breathed, with comparative impunity, air having a temperature of 75° below zero, while others have resisted for some minutes a temperature of 325° or 113° above that of boiling water,—a range of 400°.

But this wonderful power, by which man and many of the higher mammals maintain an equable temperature in the face of fluctuations of hundreds of degrees, is not shared by innumerable hosts of living creatures. In general, it is held that the temperature depends upon the amount of fuel consumed,—but large orders of animals habitually spend half their lives in a state of passivity or torpor more or less complete, consuming little or no fuel, just when the external temperature is the most trying or hardest to resist. This is notably the case with many cold-blooded reptiles, with myriads of insects,—the fresh water and air-breathing mollusks of our climate.

Appleton's Encyclopædia alleges that in the case of some hibernating animals there is a suspension of all respiratory acts and an unchanged condition of the surrounding atmosphere.

Digitized by Google

Dr. W. G. Binney says of land snails that they withdraw themselves into their shells and "the functions of digestion, respiration and circulation being suspended and all secretions and excretions having ceased, there is no drain upon the animal," and the "mouth of the shell being hermetically sealed" the "air imprisoned in the shell is found unchanged."

There is perhaps no part of our globe where mosquitoes are more numerous and tormenting than within the Arctic Circle, and 'tis reported of Lieutenant Peary in his famous Arctic journey that he did not get too far north to find bumble-bees and butterflies, though for months at a time these frail creatures must, somewhere and somehow, in a state of complete torpor, have endured very low temperature; often from 50° to 75° below zero.

With the so-called cold-blooded animals, the temperature is said to be usually only one or two degrees above the surrounding media, and, when this sinks below freezing, they of necessity must closely follow, and must, perforce, offer less and less resistance to congealation as the vital energies "slow up."

Biologically considered, it may seem that congealation must make molecular changes in the circulating fluids destructive of their integrity,—and yet we must not permit our deduction or seemingly well founded theorizing to cheat us out of the most obvious evidence of our senses.

To satisfy himself as to how some familiar creatures do spend the winter, the writer collected, in 1893, between February 25th and March 12th, no less than 100 species of insects in different stages of development. These belonged to all the orders, and many of them were habitually in very exposed situations, as if protection from cold was of small consequence. Many, secured when the thermometer was hovering about zero, seemed frozen stiff, and would snap like dried twigs if bent abruptly; and apparently frozen ants and some small beetles and certain wood-eating larva, with the warmth of the hand and the breath, would often show signs of returning consciousness in a few minutes.

Some twenty-five experiments were made by subjecting some small Minnows, earth worms, insects, (larval and mature), to from one to five and one-half hours exposure to the rigors of a freezing mixture which was potent enough to depress the mercury from living room temperature to zero in three minutes. There seemed to be no failure to freeze all of the hundreds of creatures subjected to zero temperature for an hour or less. Some were tested and found to break like pipe stems if attempt was made to bend them, others were cut in two or sliced, and the entire visceral cavity seemed about as surely frozen or as crystaline as ever potatoes or turnips are.

The results which followed were variable. The small fish, frozen for an hour, mostly "passed that bourn from whence no traveler returns," a few gasped feebly when thawed, while one or two feebly moved about for a few minutes and then ceased to be.

A large beetle found in and under rotten wood, the "Betty-bug" of the children (*Passalus cornutus* of the books), never more than moved a leg a few times upon being thawed. *Millipedes*, *Centipedes* and Earth Worms invariably succumbed, the latter being as effectually cooked to a glutinous and almost shapeless mass as if baked. On the other hand, certain medium sized beetles and certain wood-eating larva of beetles and two or three species of large hairy caterpillars, known as "Ague Worms" and "Hedge hog Caterpillars," nearly all came through apparently uninjured after repeated exposure of from one to five and one-half hours; and some of them were still alive after two weeks, though kept in a room that would have dried apples in half the time.

The conclusions reached by these investigations are that: Insects, either in the larval or perfect stage, when in a torpid state, freeze almost as readily as inanimate objects. Second, that countless numbers freeze and thaw annually without apparent injury; and third that solidly frozen and kept below the freezing point, respiration, circulation and sensation are suspended, and all waste of substance being thus arrested, some creatures may be thus kept for months or even years, and with the return of warmth and genial conditions, resume vitality just at the point where arrested.

E. PLEAS.

Dunreith, Ind.

Mr. Pleas' paper is one of the most satisfactory that have come under the observation of the Conductors. But it seems rather to favor the proposition that no creature can be frozen "solid" and live. That they can freeze to such

Digitized by Google

an extent as to be stiff and break when bent is well-known, but that the frost can reach the hitherto unknown material which preserves life during "dormancy" is just the point to be established. Mr. P. shows that numbers did not retain life under the freezing any more than a frozen potato or turnip would; and further that a few which did weather the frigid storm had their vitality impaired. The inference is that the freezing, in those which escaped wholly, did not reach the vital part.

SCHIZÆA PUSILLA.—One of my favorite plates in "The Flowers and Ferns of the United States" is of that rare and pretty fern, *Schizæa pusilla*. I have turned to it a good many times in the year past, and would wonder, as I looked at the odd little beauty, whether it would ever fall to my lot to collect it on its native heath. I had once seen a pressed specimen; but herbarium specimens, interesting as they are, do not quite satisfy. One wants to meet his plant in its wild home, note its native graces as it grows and see who its neighbors are. So tiny a plant as *Schizæa pusilla* is likely to give good eyes a severe test, even when the exact spot to hunt for it is known; and when only general directions are had, the task is well-nigh hopeless. At Quaker Bridge, N. J.—forever classic ground to the botanist as the place where this fern was first collected in America,—I once spent the best part of a precious holiday searching for it, but though several interesting "barrens" plants went into my press, *Schizæa* was not one of them. My gratification was great, therefore, when an opportunity was afforded me a few days ago (October 16), to accompany to Egg Harbor City, N. J., a friend who knew a station for it in that vicinity. Having only two or three hours to spare for the search, we went down from Philadelphia on the evening train, stayed over night at the hotel, and a little after sunrise were on our way in the frosty air toward the cedar swamp, near which the object of our quest grew. A walk of half a mile through a perfect blaze of leafy beauty—oaks, maples, chestnuts, birches and sumachs, all contributing to the gamut of color that ran from light yellow to dark crimson—brought us to the desired spot, a little opening among the pines and scrub oaks. The stunted trees all about, the waste of sand, the absence of life or sign of human habitation, the marks of recent fire amid the sparse vegetation, all tended to give the place an air of desolation. To me, however, being in the abiding place of a new and rare plant, there was enchantment in the air. I could realize how the hero of the old fairy tale must have felt as he stood before the castle, somewhere within which his lady love lay bound under a magic spell. The damp ground was bare in some spots, and in others, mosses, grasses and lycopodiums crept and grew, with here and there some ericaceous bush. As I walked about, bent half double, my eye was suddenly caught by what looked like a fertile frond of the little fern, but, when I stooped to pick it up, it turned out to be the dry capsule of a moss. A little later, as I was on my knees, gathering some specimens of a lycopodium new to me, I was attracted by the sight of a slender, spiral curl of green, rising hardly an eighth of an inch above the sand, and straightway I had in my hand my first *Schizæa*—a bright green cluster of twisted sterile fronds from among which arose two thread-like stalks, bearing the fertile pinnæ bunched at the top, brown with age. Then, getting down on all-fours, or lying with face close to the ground, I began to get used to the look of things down there, and as often happens in similar cases when the eye becomes "set," I shortly saw hardly anything *but* the fern,—the little spots of fertile appendages popping on my sight, one after another, as the stars break through in the darkening sky when once the night begins to fall. So our search was successfully accomplished, and by nine o'clock we were back at the station, ready for the train cityward.

C. F. SAUNDERS.

Philadelphia.

NEST OF THE CHIMNEY SWIFT.—Referring to article in January number, "How does the swallow build its nest," I would say: While bird watching last spring, our attention was attracted by an occasional cracking in a dead maple tree behind us, accompanied by a whirring sound. Upon investigation, we found it was made by the chimney swifts, who flew to the tree, broke off the dead and brittle twigs and bore them away. We saw it done several times. The twigs were broken off by the bird on the wing.

CHARLES W. JENKS.

Bedford, Mass.

Digitized by Google

GENERAL GARDENING.

MEMORIES OF THE BEECH TREE.

"We sat beneath the beechen tree
Where we had sat full many a time before,
With the lost friends of days forever gone.
The place was haunted with the shadowy past;
There were familiar faces in the halls—
There were strange shadows on the winding stair;
But still the pewit, as in other years,
Was swinging careless on the delicate spray,
Whose bursting buds showed the first early green
Of April, uttering his pleasant note
Like rain-drops falling into water."

—HOWARD WORCESTER GILBERT.

THE ADVANCE OF SPRING.—A correspondent from the North, traveling southwardly, under date of February 15th, sends the following interesting notes:

"I have been in Washington some days for a recuperative winter trip, and have had several botanical rambles over in Virginia. Just the other side of the Potomac, near Arlington, I found the wild trumpet vine growing up almost every large tree near the yellow river, and, here and there, handsome Pitch Pines and quantities of young locusts. The walks were full of novelty; a large mallow by the lately-flooded river bank, a pair of evergreen herbs, which I enclose, and things appearing in such a different way from home things.

"A river reach in the bright, late afternoon sun is never to be forgotten. The pines lit to a gold green, and the yellow grass and tawny sand, with the blue river and the great monument and dome of the capitol beyond as a background. Here I came upon some Yuccas, probably escaped from an older civilization, but having all the appearance of being spontaneous and were indigenous. Here was what I took to be a *Crotalaria*, and my hands were sweet with fresh resin after I pulled some cones from the low pines. There is a large crow-roost, you know, at Arlington, and, as the day grew later, and the sun lowered and became more golden, the birds flocked in from all directions, though chiefly from the east and the south, blackened the air and filled the woods with rancorous din, bending the branches of the cedars and pines where they roosted, a mile east of the cemetery.

"At Mount Vernon, I took a short jaunt up the dry hills and barrens for the plants, and found what I take to be *Diodia teres*; and by a stream, Coral Berry and Wafer Ash. The holly through the woods is a joy to one's eyes in winter. And you remember, in Washington, how the magnolia is so great a favorite,—it is planted in every yard. Just south of Arlington, we crossed the marshes and two wild ducks flew up. It was as wild a scene as I have ever passed through, with nothing but colorless reeds and tangles of Smilax; pools of dark stagnation and cedars,—cedars everywhere, so much larger and handsomer than ours at home.

"The Ladies' Association is doing work after your own heart at Mt. Vernon, keeping the grass and trees trim and the gardens kempt, and collecting old mementos—*Washingtoniana*—in the long sacrileged rooms,—so that now, the old state of affairs are as nearly as possible re-established. I am telling you no news, I guess, but just want to send you a short souvenir of winter botany and winter sunshine in the South here, where we have no snow under foot, and the clemency and beauty of the city is a boon to those needing a change of air and scene."

VEGETABLE MORPHOLOGY.—An interesting light was thrown on the subject of vegetable morphology by the behavior of a geranium with us recently. From the centre of a truss of blossoms that were fading, a new stem shot up, and, at its top, what appeared a single large bud was developed. This continued to enlarge, but did not open. At the end of a month it was taken apart and examined, and was found to consist of no less than seventy-six colored petals and five green sepals. The receptacle on which these were inserted was about a quarter of an inch long. It seemed undecided whether to be leaves or flowers.

WILLARD N. CLUTE.

Digitized by Google

THE ANCIENT CORN.—Referring to the note in MEEHANS' MONTHLY for February, we think possibly the corn story may refer to Missouri. There was exhibited at our annual Fruit Show, by Dr. J. T. Matson, this city, some corn grown from some old seed from the mounds of the Ozarks of Missouri. Pres. J. C. Evans, of our State Horticultural Society, and proprietor of the Olden Fruit Company, of Howell Co., is a very conservative and reliable man, and we have seen a written statement from him as to the history of this ancient corn. Should you care for same, we will secure copy; also, can send you some of the corn, if desired. The enclosed statement was published in the *Journal of Agriculture*, St. Louis, December 5, 1895.

"Attorney J. P. Dawson, of this city, a few days ago sent to this office two ears of corn which have a history of more than ordinary interest. These ears were grown the past season by Dr. Jas. T. Matson, of Louisiana, Mo., who started with thirty-two grains. He says it ripens early, with a vigorous stalk and with as high as four full ears on a stalk. One of the ears is deep red, ten inches long; the other is nine inches long, and of a peculiar yellowish, brownish color, having the appearance of having been partially roasted, although it has not been about the fire. Concerning this prehistoric corn, we get the following facts from a reliable source.

'Elder Curry, a Baptist divine, now living in Christe, Howell County, Mo., while exploring a mound near that place, found thirteen grains of corn, apparently sound, incased in a stone jar or vessel. He planted all of the thirteen grains carefully, and but one produced; and a strange incident is that but thirteen grains grew as his first produce.

They were carefully kept and planted the following year by Elder Curry, and the product was well matured. The two ears on our desk, grown by Dr. Matson, were grown from corn of that yield. President J. C. Evans, of the Missouri State Horticultural Society, who has grown some of the corn, says four-fifths of all he has raised is red, and he thinks the original grains found must have been red originally and bleached by ages.

Elder Curry, who has made a study of prehistoric history, thinks the corn he found in the mound was undoubtedly 3,000 years old. He is located in South Missouri, it is said, for the purpose of looking into ancient hieroglyphics, and is writing a history on the subject.

The above facts confirm the belief that the germinating power, or powers of reproduction, of corn may be preserved for an indefinite period if surrounded by proper conditions.'"

W. P. STARK.

Louisiana, Mo.

There is no doubt but that seeds which are protected from light, high temperature, and guarded from loss of moisture, will preserve their germinating power for a long time. It would be very desirable to know just how long such seeds would live, and it is this desire for the definite that gives the subject its chief interest. But the facts to sustain these long-period beliefs must be incontrovertible. In the present case, if thirteen grains of seed had been entombed 3,000 years, and one could survive, all would have survived without a reasonable doubt. The destructive agencies that destroyed the twelve would have been equally active on the thirteenth. The inference from these considerations would be that there is a possibility of mistake somewhere, notwithstanding the high character of the observer. The writer of this paragraph cannot claim the honorable dignities of Mr. Curry, but has been as careful as any one could be, and has often found himself at fault when it seemed impossible there could be a mistake.

POPULARITY OF CARNATIONS.—It is remarkable what a continuous hold on popular favor is possessed by the carnation. It was employed by the ancient Romans, 2,000 years ago, to make chaplets for their deities at festivals in their honor. It is botanically known as *Dianthus*, which, literally translated, is "Flower of the Gods." Florists tell us that it is one of the most popular of all used in the cut-flower trade. No flower, not even the rose, can be taken from the list of cut-flowers whose loss would be so severely felt as would the disappearance of the carnation.

CARE OF LAWNS.—Newly made lawns are liable to have noxious weeds appear. These should be carefully hand-weeded. If holes result, they should be filled with earth. The grass will soon spread in and take the places the weeds occupied. A good rolling with a hand roller, after weeding, is a good practice.

Digitized by Google

THE PRINCIPLES OF ART IN LANDSCAPE GARDENING.—Even those who have no knowledge of art can tell the difference between a garden that has been tastefully constructed and one that is wholly deficient in what would be termed the principles of art. The visiting party may not be able to explain why the one gave more pleasure than the other; but the fact, that the pleasurable feeling existed, shows that there is something solid in what is known as the principle of taste in landscape gardening. It is said by those who are experts in these arts that nearly all the beautiful results are derived from three simple elements,—the earth, sky and water. Given these three to handle as he pleases, the eminent landscape gardener can make as beautiful a picture as it is possible to realize of this earth. This is so far as the elements furnished by nature are concerned. The works of man must come in somewhere, and add what is called "life" to the picture. Hence, no matter how beautifully and tastefully a garden may be laid out according to the principles of landscape gardening, evidences of human life and human work always add to the pleasurable results of the art of the gardener. Distinct views of public buildings, churches, or any striking object connected with human life, tell the lover of gardening that he is not alone in the world.

When the poet asks in the famous song, "Who would inhabit the wide world alone?" he has a response in human sympathy from the heart of every man. It is not so much that these views of buildings give pleasure in themselves, but they indicate that there are others in the world to give us love.

Some pictures by the great masters most eloquently tell this story, though the beholder of the picture may not have the remotest idea of what it is that excites in him those pleasurable sensations. There is one which will illustrate this—a beautiful picture by Carl Weber, among the many lovely ones on exhibition in the celebrated Earles' Picture Galleries, in Philadelphia, and of which we give a miniature reproduction with this. There is in this picture a boundless breadth of sky, with a beautiful sheet of water below; while the rocks and trees and contour of the surface of the ground make in this a beautiful scene. But that there must be human life to give still more interest in the picture is evidenced by the fisherman's hut. But even this will not imply the existence of living beings. It might be a deserted cabin,—but the fish-reel shows that life is active there, and that human beings are still engaged in active operation at the point, and still further is this impressed by the little vessel sailing on the watery expanse. All combine to make a living picture in addition to the purely natural points which the landscape gardener would call essential as foundation stones.

Landscape gardeners can get many useful lessons from such pictures as these. Of course,

true art is that which adapts existing circumstances to abstract rules of beauty; but where all the elements can be supplied at once, such as the artist with true genius has brought together in this picture, the true landscape gardener feels as if he were in Paradise.

PYRUS JAPONICA HEDGES.—Evergreens do not make good hedges where the roots of large trees make the earth very dry in summer time. Deciduous hedges are preferable in these cases. The *Pyrus Japonica* is a very pretty plant for a deciduous hedge. It is liable to be affected by the same white scale insect that attacks apple and pear trees. Kerosene emulsion, forced in among the branches by a good spraying machine, is effective in keeping them down.

Digitized by Google

TREES FOR PUBLIC STREETS.—Prof. Chas. E. Bessey has a good word in *Garden and Forest* for the Box Elder as a tree for generally useful purposes on the plains. It is not less true of it that it might be rendered of much more service in the East as a shade tree on public streets than it is at present. The great mistake in almost all selections for street trees in the older portion of our country is that they look to rapid growth alone. The Conductors of this magazine know of streets in which sidewalks are not more than 6 to 8 feet in width, and yet lofty forest trees, which within a few years become many feet in diameter, are employed as shade trees, getting so large that finally there is not room for a person with an umbrella to pass between them and the building line. These forest trees usually grow rapidly, and it is forgotten that this very rapidity in time becomes a fault. They not only get too thick in the trunk, but entirely too tall for any useful purpose. There is great temptation to employ the tree butcher to head them off. This is done in hope that they will branch lower, and give the grateful shade for which they were originally employed. Experience shows that this is all wrong. Trees headed off in this fashion always rot in the centre, and a very few years after such treatment they are only fit for fire wood. Now there are a number of trees which grow very rapidly for a few years but soon come to a standstill and make nice spreading heads. Good street trees should be sought for in this list. The Box Elder, or as people call it in the East, the Ash-leaf Maple, is one of them. It rarely reaches 40 feet in height and has an early tendency to spread horizontally. The Norway Maple is another which has this spreading habit. The Catalpa may also be named. There are also some species of oak which grow rapidly and yet do not reach lofty proportions. And there are trees of recent introduction which seem to be of this character,—some of them belonging to the mulberry family. The old Paper Mulberry, which has now almost disappeared on account of its annoying habit of throwing numerous sprouts or "suckers" from the roots, is yet a remarkably good tree, for the other reason cited. It belongs to the genus *Broussonetia*. Another Japanese species has been introduced under the name of *B. Kæmpferi*, but this seems to have suckering proclivities. The *Hovenia dulcis* appears also to incline to rapid growth when young, and makes a spreading and lofty head. Even the *Kœlreuteria* would make an excellent tree for a narrow street when an entirely low and spreading habit with rapid growth in its younger stage is desired. A number of these are well worth trial.

RAISING TREE SEEDS.—A Mobile, Alabama, correspondent says:—"I find myself much in want of information on the vitality of tree seeds and the time required for their sprouting after being placed under ground. I readily raised plants of *Taxodium distichum* a year old, finding them to sprout a month or so after sowing. With the White Cedar, *Chamæcyparis thuyoides*, and the Red Cedar, *Juniperus Virginiana*, I never had such success."

There is no rule in regard to the germination of tree seeds. A quantity may be gathered from the same tree, be all preserved alike, and sown at the same time. Most of them may sprout the following spring; but a large number of plants will appear the following year, and often many will be found coming up the third year. No explanation has been given of these vagaries. A remarkable feature in tree-seed growing is, that most seeds have a period in spring in which they seem to love to sprout. If for any reason they do not germinate within that period, nothing will induce them to grow till the following spring. They seem to have intelligence that they cannot mature the young plant, unless they start in good time during the spring season. Seeds that have somewhat hard coatings are difficult to get to grow the same season when sown in spring. Such seeds cannot usually be obtained till after the ground has frozen up in autumn. In this case the method is to save the seeds till the growing season in spring has passed, and then mix them with earth and sow the next fall or spring. This is termed, in the language of the seed growers, putting the seeds in the rot heap. Such seeds as holly, hawthorn, and one of those inquired about by our correspondent, the Red Cedar, *Juniperus Virginiana*, are of this class. Most coniferous seeds grow easily the same season of sowing, though the harder-shelled ones, such as the Deciduous Cypress, *Taxodium distichum*, will have a few lie over till the second year.

Digitized by Google

REPOTTING PLANTS.—The amateur gardener is often at great trouble to repot plants. A few simple directions will help materially to lighten his labors. A beautiful work for amateurs has recently been published in Berlin by Max Hesdorffer, one of the editors of *Natur und Haus*, entitled "Handbuch der Practischen Zimmergartnerei," from which we take the illustrations for this paragraph.

Fig. 1.

Fig 1 represents a pot-bound aralia, which needs more room, or the leaves will soon get yellow and sickly. The plant is inverted, and, if it has been watered a little time previously, the plant will fall out of the pot at a slight shake. But at times, the roots adhere so tightly, that a slight tap of the edge of the pot against the potting table will be required before the plant will fall. Fig. 2 shows the next operation, with a dracæna in hand. In our American practice, the empty pot would be placed in an upright position, instead of on its side, as in this picture, to save it from being broken by rolling off. They would be placed upright, so that other pots could be placed in them, ready to be carried away. This can be done with American pots, as they are so constructed, that a phlange prevents undue pressure on the lower pots. European flower pots would have the lower ones cracked by the outward pressure of the upper pots on the one below.

Fig 2.

But to return to the potting process, a pointed stick is used to press apart the mass of roots, which have coiled inwardly by the confinement heretofore. The illustration represents a round stick, but in America a flat one is preferred. Fig. 3 shows the re-potting process, this time with a *Kentia* palm. The earth used to fill in the space between the smaller ball and the larger pot is preferred to be as dry as possible. It is then rammed in as tight as possible, with a flat stick. This, by the way, is why the flat is preferred to the round stick, as previously noted, that the same one will answer both operations. Wet earth will not do, because it drives out all the air when rammed in tightly,—but, when dry, the more it is rammed, the more it pulverizes, and the more minute air spaces it contains, which is considered the perfection of soil treatment.

CLASSIFICATION OF CHRYSANTHEMUMS.—In the great exhibition, which is to be held at Ghent, in Belgium, between the 15th and 17th of November next, under the auspices of Count de Kerchove, the crysanthemums are to be exhibited in separate classes as follows: Fifty flowers of the Japan race, which may be incurved, reflexed or anemone-like; 75 flowers of any class; 30 flowers of Japan varieties or their hybrids; 30 flowers anemone-like, which may be incurved or reflexed; 20 named kinds on tall stems; 20 flowers of varieties introduced between 1895 and 1896; collection remarkable for size of flowers; collection of three boquets formed of chrysanthemum flowers; a vase of flowers with chrysanthemums for the chief ornament. We hope Americans will compete there.

Fig. 3.

Digitized by Google

FOREST MANAGEMENT AND FOREST FIRES.—This magazine has pointed out that there will never be absolute security against forest fires as long as the woods are filled with inflammable matter in the shape of dead and dry underbrush. Though millions of dollars are spent on forest wardens, and tons of laws inflicting penalties are posted, as long as there is a gunpowder-like mass of material ready to go off with a flash, disastrous forest fires will ever be. A small supply of dead twigs, and of gathered leaves among living underbrush, will do no harm,—a fire flowing along material such as that will not hurt the forest trees. The writer knows of a wood such as this, which is annually fired by locomotives, without the slightest injury to the oak, hickory and Red Maple of which the forest is composed. In order to illustrate the point made, permission has been obtained of Mr. Gifford, of May's Landing, New Jersey, to reproduce from *The Forester*, which he so ably edits, a sketch of a natural White Pine forest in that State, see page 65. It will be seen from this how impossible it is that a wood of that character should take fire to result disastrously. The planting of new forests is much obstructed through the fear that, after a quarter of a century of patient waiting for timber, the planter might find the forest only fuel for the flames,—but if kept clear, as a newly-planted forest should be, for a few years, of an accumulation of dead material, there ought to be no risk that any insurance company would not readily assume.

IMPROVEMENT IN THE SHELLBARK.—I send you by this mail samples of Shellbark Hickory nuts. I think them a little better in appearance and in fact than any that have ever come to my notice. I know nothing of the history of the trees, as they grow on a farm which I bought last summer. The one bearing the nuts with the very thin shell and uneven surface grows near the foot of a steep hillside, and just below a spring, and has a large excess of "deaf" nuts, perhaps three fourths of the crop. It is ten inches in diameter at the base and about forty feet high and was very full of nuts.

The smoother shelled nut is from a small tree. I want your opinion as to the value of the find, and if they are of a choice variety, what would be the best method of propagating them. Will a tree grown from a nut bear fruit true to its kind, or would it just as likely be something inferior?

Is it not likely that the location of this (the larger) tree has a great deal to do with the fact of the fruit being so defective. The nuts all grew to full size, with beautiful white, wrinkled shells, but fell early, and fully four out of five were "deaf."

If I was sure I could get that nut to bear true to seed, or by grafting, or budding, I would plant it largely. Will you kindly give me your opinion, and oblige,

E. J. BAIRD, D. D. S.

Lock Haven, Pa.

The nuts were superior, as Dr. Baird describes. The hickory like all other fruit trees, does not reproduce itself exactly. Some of the seedlings might be better or worse than its parent. Good varieties can only be surely secured by grafting them on seedling stocks. It is rather surprising that while in the South much attention is being given to selecting and grafting improved forms of the Pecan Hickory, nothing is being done in the North with the improved Shellbark Hickories. Dr. Baird will render good service by starting so good an example.

CULTURE OF CHRYSANTHEMUMS. — Most growers like to have bushy plants. Pinching out the points of the strong growing shoots effects this. The weak shoots should not be stopped This must be done early in the growing season. Late pinching induces small flowers. Large flowers are obtained by pinching out the weaker buds. The whole power of the plant is then spent on the one or two buds left. Healthy leaves tend to help form large flowers. Any appearance of leaf disease should be at once checked. The perfection of Chrysanthemum growing is to keep the old leaves healthy as long as possible.

NEW OR RARE PLANTS.

DAPHNE CNEORUM. — The pretty *Daphne Cneorum* will often bloom profusely in the autumn as well as in early summer. Its sweet-scented, rosy flowers make it always welcome. Even the little evergreen bush which bears them is ornamental. It is a plant well suited to sandy soil, or soil that is full of stones or

Digitized by Google

gravel. It dislikes heavy clay or stiff earth of any kind. A friend, who has a rather poor soil to deal with, first sets the plant in a very shallow manner, and then puts a frame of thin boards three or four inches deep around the plant. This is filled in with sand. The branches root in the sand, and the plant grows freely in it.

VINCA HERBACEA.—A very old, but very rare herbaceous perennial, is *Vinca herbacea*, a native of Hungary, and therefore perfectly hardy. The common Evergreen Periwinkle, *Vinca minor*, is well known, if not under its botanical name, at least under its common one of Hardy Myrtle. The herbaceous one, as its name implies, dies completely back in the fall, but in the spring starts again, and is soon covered with a mass of bright blue flowers, which renders it quite a showy ornament in the garden. It is one of the most satisfactory of perennial plants.

NEW SWEET PEAS.—Great strides have been made in the past few years in the improvement of the sweet pea. We have this year a further proof of this in the offering of a double flowered form. The introducers, Peter Henderson & Co., state that "they will not all come double, but, if the plants are grown strong and luxuriant, they usually produce from 20 to 40 per cent. of double blossoms."

Further development in the advancement of this flower is presented by W. Atlee Burpee & Co., who are introducing a dwarf white sort,—"Cupid." They claim that it has "entirely lost the habit of a vine and makes a low tuft of short branches which hug the ground, showing no tendency either to trail or climb." This is certainly a most desirable trait, as it does away with the use of "brush," which is always an unsightly object in a well-kept garden.

Another valuable sort, introduced by D. M. Ferry & Co., is the "Extra Early Blanche Ferry." They claim for it that it will come into bloom fully ten days before the old sorts. This may be the case when they are grown in the garden, but when forced under glass in the winter they will bloom at least six weeks earlier. This the editors can testify to, having forced both sorts—flowers opening on the "Extra Early" by February 1st.

FRUITS AND VEGETABLES.

GRAPE CULTURE IN VIRGINIA.—Prof. S. B. Heiges, the Pomologist of the U. S. Department of Agriculture, made an extended trip among the fruit growers of the south last autumn and makes the following notes in regard to grape culture in Virginia:

"At Charlottesville many of the vineyards of that noted section were observed. William Kopoff has 75 acres in vineyards, in which grow Norton, Ives, Concord, Riesling and Elvira. He sprays very early and his vineyards are not troubled with rot; he formerly sprayed five times, but now sprays only twice a season. He fertilizes with raw bone, as potash does not do as well, and none who have tried it see benefit from its use. His vineyard has yielded 8,000 pounds per acre. He converts his grapes into wine and makes from 20,000 to 60,000 gallons per year, which he sells to private parties from Maine to Texas. He also distills about 400 gallons of brandy per annum.

Mr. Becket has 100 acres largely devoted to grapes. His Delawares bring him 35 to 85 and Concords 30 to 60 cents per 5-pound basket; Salems 45 cents and Marthas 35 to 60 cents per 4-pound basket.

The Monticello Wine Company, largely engaged in the making of wines and the distillation of brandy, affords a convenient market for the grapes of this region. The resources of this section in general fruit culture are varied and of great extent."

BALDWIN AND RHODE ISLAND GREENING APPLES.—For all the competition from new and improved varieties of apples, the Baldwin and Greening apples form the bulk of what are sold in the Eastern Markets during spring. Considering the long time these two varieties have been under cultivation, it must be conceded that they do not aid very much the notion that varieties wear out.

QUALITIES OF A MARKET APPLE.—Putting the question to a large dealer why apples not more than second rate were more popular with market men than kinds of better quality, which would command a larger price, he remarked that the kind that did not decay rapidly had the most profit in it.

Digitized by Google

BIG APPLES.—The *California Fruit Grower* has the following which explains itself:—

"It is of but little use for Eastern men to say they have produced the biggest or best of apples, or in fact of any other kind of fruit. The mighty West always comes in with something bigger or better. Here is a case in point from the *Rural Northwest*, of Portland Oregon:—

'The *California Fruit Grower* says that MEEHANS' MONTHLY for November presents a cut of a Winter Rambo, or Rambour, apple measuring 5⅜ inches in diameter and announces it the largest apple known. The *California Fruit Grower* wants to know what Oregon apple growers have to say on this subject. It is to be said that the apple referred to is not the largest grown, though doubtless it is the largest known to MEEHANS' MONTHLY. Both Oregon and Washington have grown apples of much larger size. Ex-Senator Ford, of Milton, Oregon, raised in 1876 a Gloria Mundi Apple which weighed 46 ounces. The apple was exhibited in both Oregon and Washington and then sent East for exhibition. An apple of the same variety which closely follows it in size was grown in Clarke County, Washington. This apple was exhibited in Portland and a life-size reproduction of the same was made in wax which remains to prove that a much larger apple than the one described in MEEHANS' MONTHLY has been grown. There is also pretty good authority for the claim that a Gloria Mundi Apple was once grown in Yamhill County, Oregon, which weighed 5½ pounds. A few weeks ago the *Herald*, of Coquille City, Oregon, reported that Mr. Figg, who resides near that place, has raised apples this year which measured 5½ inches in diameter. Possibly the measuring may not have been so accurate as that done by MEEHANS' MONTHLY, but there cannot have been much difference in size. The *California Fruit Grower* failed to state what the apple described in MEEHANS' MONTHLY weighed, but a Rambo Apple 5⅜ inches in diameter ought to weigh about 35 ounces.'"

To which, we have only to say, that the size and weight of an apple are by no means co-relative. Among apples in general cultivation there are few that will equal the Alexander in size,—but many kinds with much smaller fruit will outweigh them. Every one is, however, prepared to look to the Pacific States for leadership in large fruits.

THE LADY THOMPSON STRAWBERRY.—Possibly the largest strawberry now in cultivation is the Lady Thompson. It is depressed globose in form, and has been raised seven and a half inches in circumference. Mr. O. W. Blacknall, who tests strawberries on a large scale, at Kittrell, North Carolina, says of it:

"This is the new North Carolina variety which, by the astonishing prices the berries brought on the northern markets, created such a stir among fruit growers. Owing to its large size and strong points as a shipping berry, it brought from 30 to 40 cents a quart, while other kinds were selling at less than half that price. The fortunate man who got it first grew 10,000 quarts an acre, and cleared $13,000 on it in one season. I have not yet fruited it, except on young plants, but I have taken much pains to correspond with disinterested men who have, and they consider it to have a distinct place of its own as a great market berry. Of 100 or more varieties on my place, it is the most independent of drought and the quickest and fastest grower of all."

THE CULTURE OF THE ONION.—In many parts of the world, the onion is sown in early spring, and manages to get to as large a size as the grower desires the same season. This is especially true of gardening in Spain, where the onion is the most popular of all vegetables. In other countries, especially in many parts of the Eastern States of this country, the onion is sown in the usual spring time of seed planting; but mature when they reach the size of marbles. These small bulbs are called onion sets, and they have to be planted the next season in order to reach their full size. It is now stated that if the onions are sown in hot-beds, under glass, about the time that early spring radishes are sown, and then moved to the open ground, they will reach their full size that season. It would seem as if this would be a much more economical way than the old fashioned plan, which requires two years or over. It is well worth the attention of progressive gardeners. In onion culture it may be remarked, loose soil is to be avoided. The best results follow where the earth is firmly pressed.

Digitized by Google

GRAPE CULTURE IN SUMMER TIME.—Almost all the treatises on the practical cultivation of the grape are intended for large vineyards, where the grape is cultivated for market purposes alone. The amateur gardener who has but a few dozen grape vines to care for can get very little profit from these rules. For the benefit of the amateur, we may say that the best time for pruning his grapes will be the spring and summer months. He should have a clear idea as to the number of branches, and which ones he needs to leave grow for fruiting the following season; and, soon after growth has commenced, the weaker shoots, that he does not need for fruiting the following season, should be taken out. All the vital power of the plants will then go into the branches that are left. They will be strong and healthy and bear fine grapes the following season. Another point to be attended to is, that in the limited room of the amateur's garden it is desirable to keep the fruiting branches as low to the ground as possible, and every effort should be made to make them strong. In the summer pruning, or rather "pinching out," of these branches, it will be found that the upper shoots are the strongest and the lower ones the weaker. If it is found desirable to have the branches low towards the ground, the upper branches, although strong, should be pinched back. This will throw the strength of the plant into the weaker branches, and make them as strong as if they pushed out from the upper portions of the plant. It is impossible to teach this in the few words of a paragraph. Much can be learned from actual trials, and if the amateur grower with little experience in grape growing, and with this paragraph before him, will experiment with a single vine for one year, he will learn more from actual observation than he could by studying a whole book on grape culture for a week.

PRODUCTIVE VARIETIES. — There is much difference of opinion as to the reason why some varieties of fruit are more prolific than others; and a reason has been suggested in connection with the strength or weakness of the floral organs. The U. S. Department of Agriculture gives a list of some apples and pears, with their characters in this respect:

Apples.—*Varieties more or less self-sterile.* Bellfleur, Chenango, Gravenstein, King, Spy, Norton, Melon, Primate, Rambo, Red Astrachan, Roxbury Russet. Spitzenberg, Talman Sweet.

Varieties generally self-fertile.—Baldwin, Codlin, Greening.

Pears.—*Varieties more or less self-sterile.* Anjou, Bartlett, Boussock, Clairgeau, Clapp, Columbia, Easter, Gray Doyenne, Howell, Jones, Lawrence, Louise Bonne, Mount Vernon, Sheldon, Souvenir du Congres, Superfin, Colonel Wilder, Winter Nelis.

Varieties mostly self-fertile. Angouleme, Bosc, Buffum, Diel, Flemish Beauty, Kieffer, Le Conte, Manning's Elizabeth, Seckel, Tyson, White Doyenne.

The subject is one of great interest to fruit growers, and deserves to be examined more carefully. A few experiments are not enough to establish such a general principle. The Conductors knew of a Red Astrachan tree, isolated far from other apple trees, that was anything but "more or less self-sterile." We have regarded sterility as often due to the relative maturity of stamens and pistils in the same tree. Some seasons the stamens will mature and scatter the pollen long before the pistil is in a condition to profit by it. The same tree, in other seasons, will mature the pistils in advance of the stamens. It is believed that this point has been wholly overlooked in the government experiments. But it is one of great importance in a final settlement of the question. This being true, it would follow that a tree, self-sterile in one locality or one season, would be abundantly productive in another.

SHIPPING GRAPES TO THE OLD WORLD.—Grapes can be safely transported across the Continent and enter any successful competition in the Grape Market of the East; but for some reason or other it has not been found possible to send them across the Atlantic to enter into English markets. The past year, a determined effort was made to ship to England; but, notwithstanding the advancement of what might be termed Progressive Shipping Knowledge, failure resulted. There ought surely to be some method by which we could carry these lighter fruits to the Old World without loss, seeing how much we have done to transport them safely to even the remotest portions of our wide domain.

Digitized by Google

BIOGRAPHY AND LITERATURE.

A FLOWER SERMON.

Everywhere about us are they glowing,
Some like stars, to tell us Spring is born;
Others, their blue eyes with tears o'er flowing,
Stand like Ruth amid the golden corn;

Not alone in Spring's armorial bearing,
And in Summer's green-emblazoned field,
But in arms of brave old Autumn's wearing,
In the centre of his brazen shield.

—LONGFELLOW.

WORDSWORTH.—The reader versed in English literature doubtless knows that "Wadsworth," the author of the beautiful lines on the daffodil at page 29, should have been printed Wordsworth.

HISTORY OF KING COTTON.—A paper on the history of cotton, by Mrs. Elizabeth L. H. Willis, of Charleston, read at the Womans' Congress of the recent exposition in Atlanta, appeared in the Charleston *News* of October 16th. It is one of the most intelligent and valuable succinct accounts of this important article that has ever appeared, and deserves publication in some more permanent form than the column of a daily newspaper. If Mrs. Willis could have it prepared with copious illustrations, surely some bookseller would find it profitable to publish it. Of special interest to the writer of this notice is the information given in regard to the progress the South is making in the manufacture of its own cotton. It brings forcibly to mind an incident in the writer's life. At the conclusion of the war, he was asked by a prominent leader in the affairs of the nation to make a quiet visit to the South and report on the prospects for a revival of business. "We know all about its politics," he remarked, "but what to do to revive business there, is the problem." It was found on that trip, that no sense could be found among the political leaders. Those who had fought in the war were more reasonable. A meeting was arranged with some of the Confederate officers, and the business situation discussed in the Hotel St. Charles, at New Orleans. These gentlemen insisted that the way to revive southern industries was for the North to send its capital South to invest in cotton mills, and in the utilization of southern products generally. It was apparently a revelation to these gentlemen to learn, for the first time, that even in the North capital never originated anything. Industry founded the enterprise, and capital simply came to its aid. It was finally agreed that every effort should be made to induce southern men to start industrial enterprises; and then to induce northern newspapers to encourage capital to aid them, when it was evident that any southern enterprise was a success. The cotton mills of Canton soon followed this advice. Mrs. Willis shows in her paper that to-day there are 425 cotton mills, running 3,023,000 spindles, in successful operation in the southern states; while the total machinery of the North has not diminished, being 13,700,000 spindles in 1895, against 12,825,000 in 1890. It is a great pleasure to note these evidences of progress.

While reading Mrs. Willis' suggestive paper the origin of the word muslin may be referred to. Mrs. Willis repeats the dictionary derivation of "from Mosul, an early shipping port for this article." It has always seemed that this explanation is related to Sydney Smith's effort to show that gherkin, a small cucumber, is derived from jacket, the short garment. Linen was only known, and the fine article from cotton came subsequently. Supposing some very fine article from another plant, wholly new to us, were to be received by us from Liverpool, we might find it in our marts as Liverpool cotton, or Liverpool Lin (flax), but scarcely "Liverpool" alone. It has always seemed that Mosul linen, or Mosul lin, was a more reasonable derivation of muslin than the name of the port, Mosul, alone.

DR. H. H. RUSBY.—This famous botanical collector, who has done so much for our knowledge of southern botany, has started to explore the Orinoco region.

Digitized by Google

M. S. BEBB.—The year 1895 will be memorable for the number of eminent botanists who have passed away. Michael S Bebb died on the 5th of December, in his 62d year. He was born on the 22d of December, 1833, at Hamilton, Ohio; his father was governor of Ohio. In the knowledge of the difficult family of willows, Mr. Bebb was the leading authority.

THE TRUTHS OF HISTORY.—Natural history is not the only history that passes along doubtful stories and then builds beautiful theories on them as absolute facts. A curious book, "The love affairs of a Bibliomaniac," from the pen of Eugene Field, has just appeared. A sort of garden rhyme attracted closer attention than it might have done. Among other Munchausenist tales, the following caught the eye in regard to the notable Greek scholar, Dr. Porson, who died in the beginning of the present century :—

"This human monument of learning happened to be traveling in the same coach with a coxcomb, who sought to air his pretended learning by quotations from the ancients. At last old Porson asked :

"'Pri'thee, sir, whence comes that quotation?'

"'From Sophocles,' quoth the vain fellow.

"'Be so kind as to find it for me?' asked Porson, producing a copy of Sophocles from his pocket.

"Then the coxcomb, not at all abashed, said that he meant not Sophocles, but Euripides. Whereupon Porson drew from another pocket a copy of Euripides, and challenged the upstart to find the quotation in question. Full of confusion, the fellow thrust his head out of the window of the coach and cried to the driver :

"'In heaven's name, put me down at once; for there is an old gentleman in here that hath the whole Bodleian Library in his pocket!'"

In the first place the "pri'thee" was not in use among cultivated people at that period. It is to be regretted that the "coxcomb" was so readily "confused." Had he kept on the great man would no doubt have drawn from his capacious breeches pockets Æschylus, which he himself had edited, and a whole grist of Greek works ending with the Anabasis of Zenophon, all dragged around in a stage coach! How comes such a story to become a part of truthful history? He is said by his biographer to have been a man remarkable for probity and a love of truth,—but as he was a man who loved to get gloriously drunk at times, he probably told the story, as a joke, when he was on a "spree."

But for the garden poem. It is a curious imagination that could detect the odor of so many good flowers in a lot of musty, shipworn old books,—but the fancies are in some respect pretty, nevertheless.

"THE SMELL OF MY OLD, OLD BOOKS."

"My garden aboundeth in pleasant nooks
And fragrance is over it all;
For sweet is the smell of my old, old books
In their places against the wall.

Here is a folio that's grim with age
And yellow and green with mold;
There's the breath of the sea on every page
And the hint of a stanch ship's hold.

And here is a treasure from France la belle
Exhaleth a faint perfume
Of wedded lily and asphodel
In a garden of song abloom.

And this wee little book of Puritan mien
And rude, conspicuous print
Hath the Yankee flavor of wintergreen,
Or, may be, of peppermint.

In Walton the brooks a-babbling tell
Where the cherry daisy grows,
And where in meadow or woodland dwell
The buttercup and the rose.

But best beloved of books, I ween,
Are those which one perceives
Are hallowed by ashes dropped between
The yellow, well-thumbed leaves.

For it's here a laugh and it's there a tear,
Till the treasured book is read;
And the ashes betwixt the pages here
Tell us of one long dead.

But the gracious presence reappears
As we read the book again,
And the fragrance of precious, distant years
Filleth the hearts of men.

Come, pluck with me in my garden nooks
The posies that bloom for all;
Oh, sweet is the smell of my old, old books
In their places against the wall!"

THE WILD FLOWERS OF CONNECTICUT.—Mr. James N. Bishop, of Plainville, Conn., is preparing a new catalogue of the native flowers and wild plants of Connecticut, and would be glad of any notes in relation thereto. We never knew, till preparing our wild flower chapters, how valuable local Floras are. Though so unpretentious, they are of broad value.

Digitized by Google

GENERAL NOTES.

SUPERINTENDENT OF SCHENLEY PARK.—Mr. Wm. Falconer, the well-known gardener to Mr. Chas. A. Dana, and the esteemed editor of *Gardening*, has been selected superintendent of the beautiful Schenley Park at Pittsburgh, to the satisfaction of every lover of park gardening in America. The idea is prevalent, that politics enter so largely into public work, that it is difficult to get the right men into the right places. The fact that so able a man as the late Mr. Bennett, and now Mr. Falconer, can be given such a position speaks for itself.

SPIRÆA ASTILBOIDES FLORIBUNDA.—Mr. K. J. Kuyk, of Hillegom, Holland, writes that the photograph from which we made the cut of *Astilbe Japonica grandiflora*, at p. 174 in our last vol., was sent to us for our information only, and not for use, and that it appears in his catalogue as *Spiræa Astilboides floribunda*. We have always taken it for granted that we can make cuts from photographs sent to us, and can only regret that there was any misunderstanding on this occasion. And further, we were under the impression that if there was anything on the photograph to indicate private ownership it was overlooked. At any rate, we supposed that it was the same as the one in the trade, being distributed under the name referred to in the article. We are glad of the chance even at this late date, to do full justice to Mr. Kuyk, who is one of the most enterprising of Holland's nurserymen.

DEAN HOLE'S IDEA OF HUMOR. — It has been the proud boast of flower-lovers that the cultivation of a love of gardening tends to broaden human sympathies. Dean or Canon Hole, of England, has a great name in connection with rose culture, and he is in some sort a leader in some branches of gardening. For this reputation he was feasted and toasted during a tour through our country last year in a manner seldom accorded to visiting horticulturists from the Old World. He has had to write a book about us, of course. In this he quotes with unction many specimens of what he regards as typical American humor. When he was in Cincinnati, the thing that most impressed him was the following bit of doggerel, which he heard recited in that city:

"Little Willie from his mirror
Sucked the mercury all off,
Thinking in his childish error,
It would cure his whooping cough.
At the funeral Willie's mother
Smartly said to Mrs. Brown:
'Twas a chilly day for William,
When the mercury went down.'"

It is a matter of surprise that a gentleman of his cloth could have ever gotten into company where such heartless rubbish entered into the festivities of the evening; and still more surprising that he should have so much enjoyed it as to make a copy of it for his "book." If Canon Hole is to be taken as a specimen of floral-cultured humanity, the less we boast of the civilizing influences of our craft, the better. Fortunately we all know that such an exhibition of callous sympathy is exceptional in our country, however it may be enjoyed in the Old World.

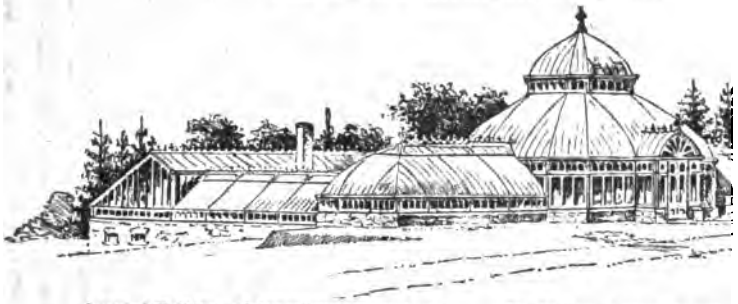
PROF. WM. SAUNDERS.—Few names are more familiar among intelligent horticulturists than that of Prof. Wm. Saunders, of London, Ontario,—a reputation equally gained among botanists and entomologists. He is a native of England, having been born in Devonshire, but settled in Canada in 1848. In 1855, he started in business as a manufacturing chemist. When the Western University was established at London he was chosen Professor of Materia Medica. In 1863 he published in the Canadian Journal, a "Flora of the vicinity of London." He was a leading spirit in establishing the Entomological Society of Ontario, and was for three years its President, and during the same time President of the Ontario Fruit Growers' Association. One of his greatest works is in the interest of horticulture, namely "Insects injurious to forests and fruit trees." At the present time he is Director of the Dominion Experimental Farms.

Digitized by Google

LORD & BURNHAM CO

HORTICULTURAL ARCHITECTS AND E

STEAM AND HOT WATER HEATING ENGINEERS
Plans and Estimates furnished on application



Largest Builders of Greenhouse Structures. Six Highest Awards at the
Send four cents postage for illustrated catalogue

LORD & BURNHAM C

ARCHITECTURAL OFFICE, 160 FIFTH AVE., COR. 21st STREET,
Factory: Irvington-on-Hudson, New York

GARDENING

PUBLISHED THE 1st AND 15TH OF EACH MONTH
BY
THE GARDENING COMPANY
MONON BUILDING, CHICAGO

SUBSCRIPTION PRICE, $2.00 A YEAR—24 NUMBERS

The most practical and valuable American Horticultural publication. DEPARTMENTS: The Flower Garden, Trees and Shrubs, The Greenhouse, The Window Garden, The Fruit Garden, The Vegetable Garden, Insects and Other Pests, Mushrooms, and others in season. See what subscribers say about this valuable journal.

"For condensed common sense in gardening matters, for reliable, unprejudiced and safe information, GARDENING cannot be surpassed, and although moderate in size it expands upon perusal." W. C EGAN, Highland Park, Ill.

"GARDENING is the best horticultural paper printed in America." CHAS L. BURR, Springfield, Mass.

"I am greatly pleased with the paper. It is practical and suggestive. Its reproduction of photographic views of plants, flowers and landscapes is a most admirable feature." W. M. JOHNSON, Hackensack, N. J.

"It is a delightful paper and has been very interesting and instructive to me." FRANK HITCHCOCK, Davenport, Ia.

"I have found GARDENING extremely useful and interesting. You have given your subscribers a great deal more than their money's worth." CHAS. E. BROWN, Yarmouth, Nova Scotia

"Such a publication was long needed in this country. Every line of its contributions is a lesson in itself to many professionals as well as to amateurs." JOHN BERRY, Gardener to Senator Wolcott, Littleton, Colo.

"I value GARDENING highly on account of the very practical character of its contents." J. A. PETTIGREW, Supt. Lincoln Park, Chicago

"I regard GARDENING as one of the most practical magazines issued in the interests of horticulture." W. P. MACARA, Waterville, N. Y.

"The paper is the most practical of any I read. W. R. AMES, Fond du Lac, Wis.

"I subscribe to all the horticultural and floricultural journals on this continent as far as I know, and find GARDENING the most practical one for an amateur like myself." DR. GEO. T. HAWLEY, Corning, N. Y.

PRACTICAL. POPULAR.

Indispensable to al
or the literature of g
own country places
rural scenery; to all
knowledge of trees,
flowers. GARDEN A
for the protection of
servation of natural
taste in the design
public and private g
versally pronounced
al journal ever publi

Wise, intelligent, entertain
Rich variety of remarkable
Winning delightful
A magnificent success

BEAUTIFULLY ILLUSTRATED.

Specimen copy fre

Garden and Forest Publishi

WHEN WRITING TO ADVERTISERS, TELL THEM YOU SAW THEIR CARD IN

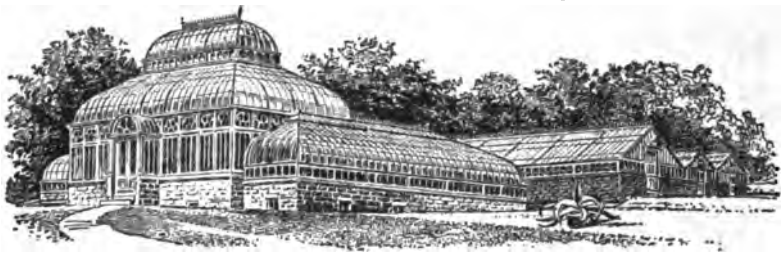
Digitized by Google

HITCHINGS & CO.

ESTABLISHED 50 YEARS

HORTICULTURAL ARCHITECTS AND BUILDERS

and largest Manufacturers of **Greenhouse Heating and Ventilating Apparatus**



The highest awards received at the World's Fair for Horticultural Architecture, Greenhouse Construction and Heating Apparatus.

Conservatories, Greenhouses, Palmhouses, etc., erected complete with our Patent Iron Frame Construction.

SEND FOUR CENTS FOR ILLUSTRATED CATALOGUES.

233 MERCER STREET, NEW YORK CITY

Trees, Shrubs, Evergreens, Vines and Hardy Plants

Our stock is one of the finest in the United States. Strong, thrifty, well-rooted and carefully selected to please our customers. **New Catalogue for Spring, 1896.** Everything accurately described and it is also profusely illustrated. Large buyers will be particularly interested in this catalogue. It will be mailed free upon application.

Landscape Engineering.

Plans prepared and carefully carried out for grading, roadmaking, planting and remodeling old places. Special arrangements made when extensive work is contemplated. Correspondence solicited.

THOMAS MEEHAN & SONS

Nurserymen and Landscape Engineers — GERMANTOWN, PHILADELPHIA.

EDWARD CAMPBELL

LANDSCAPE ARCHITECT AND ENGINEER

ARDMORE, - PA.

Sketch plans and planting maps prepared, and suggestions given for the laying out and improvement of country and suburban residences, public parks and grounds of every description.

Grounds laid out and their construction undertaken by contract or day labor, and carried out under strict personal supervision. The choice grouping and effective arrangement of trees and shrubs has been made a special study. Trees furnished and planted by experienced workmen.

Draining Plans and Surveys. **Fine Crushed Stone for Walks and Carriage Drives.**

HARDY ORNAMENTAL TREES, SHRUBS, VINES, EVERGREENS, AND HARDY HERBACEOUS PERENNIALS, The finest general assortment of Hardy Ornamental Plants in America. Two hundred page illustrated descriptive catalogue on application. Plans and estimates furnished. Send your list of needs for special rates.

THE READING NURSERY, JACOB W. MANNING, Proprietor, READING, MASS.

Modern Horticultural Building.

Elegant Conservatories, Practical Commercial Houses, and all Classes of Greenhouse Structures Planned and Erected.

We build of all Iron, all Wood, or a modification of either, as desired. Steel or Cypress Sash Bars for Butted Glass Glazing or Lapped Glazing, with or without putty. Latest methods of Ventilation, Steam and Hot-Water Heating. Iron and Slate, Iron and Tile, or all Wood Staging. Contracts taken for Completed Structure. Materials furnished to Builders. Expert advice at Residence, or Catalogues on application. ☞ Don't fail to get our Plans and Prices.

PLENTY'S HORTICULTURAL WORKS, 148-156 Randolph Ave., Jersey City, N. J.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google